

## Multi Choice Questions

### Project Management Techniques 2ed,

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#### **PMT2ed, Chapter 1: Introduction to Project Management (PMT2ed p.16)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

##### **1.1: Which of the following definitions of a Project are correct? (PMT2ed p.18)**

- a. A temporary endeavour undertaken to create a unique product or service.
- b. A unique, transient, endeavour undertaken to achieve a desired result.
- c. To make many components as efficiently as possible.
- d. To carry out ongoing maintenance of the company's manufacturing machinery.

**1.1 Answer:** A and B are correct. A and B relate to project work, whereas C and D are not unique and do not have a start and finish date.

##### **1.2: Which of the following examples of work can be defined as a Project? (PMT2ed p.20)**

- a. The construction of a sports stadium.
- b. The manufacturing of production cars.
- c. The process to make a vat of beer.
- d. To design and implement a new financial product for a high street bank.

**1.2 Answer:** A and D are correct. A and D are examples of projects because they are unique and have a start and finish. Whereas B and C are examples of ongoing repetitive production work.

##### **1.3: Which of the following define Project Management? (PMT2ed p.24)**

- a. The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
- b. The design of the project.
- c. The operation of the project when it is complete.
- d. The application of processes, methods, knowledge, skills and experience to achieve the project objectives.

**1.3 Answer:** A and D are correct. A and D are definitions from the body of knowledge. The design of the project, B, although part of the project is not normally the responsibility of the project manager. The operation of the project facility, C, is after the project has been completed.

##### **1.4: Which of the following are project management knowledge areas? (PMT2ed p.25)**

- a. Project Time Management.
- b. Personnel Management.
- c. Developing Corporate Strategy.
- d. Project Stakeholder Management.

**1.4 Answer:** A and D are correct. A and D are two of the ten acknowledged knowledge areas. Whereas although personnel management, B, and developing a corporate strategy, C, are required to establish the need for a project and select the project team, they are not part of the core project management discipline.

##### **1.5: Who developed the first Project Management body of knowledge? (PMT2ed p.25)**

- a. DoD 1950 circa.
- b. Henry Gantt 1920 circa.
- c. The pyramid builders 4000 BC circa.
- d. PMI in 1988 circa.

**1.5 Answer:** D is correct. Although the pyramids, C, are often said to be the first large capital projects, there are no documents outlining how they were managed. Henry Gantt developed the Gantt chart, B, which is an important project planning technique and, therefore, would be considered as part of the body of knowledge along with the techniques developed by the Department of Defence, A. But the first comprehensive body of knowledge was developed by the PMI, D, and is known as the PMBOK (Project Management Body of Knowledge).

**1.6: Which of the following are different types of Management techniques project managers could use during the project?** (PMT2ed p.26)

- a. General Management.
- b. Operations Management.
- c. Retail Management.
- d. Production Management.

**1.6 Answer:** A and D are correct. In many ways, a project manager needs to be a general manager of the project, and address anything and everything that arises in pursuit of the project objectives. Production management techniques are often used when certain aspects of the project work can be grouped together and performed more efficiently as a production line. B is incorrect as operations management is used after the project is complete. C is incorrect as retail management refers to the buying and selling of goods.

**1.7: Which of the following responsibilities relate to the Project Sponsor?** (PMT2ed p.28)

- a. Develop and present the business case.
- b. Realise benefits for the company.
- c. Select the project team.
- d. Manage the sub-contractors.

**1.7 Answer:** A and B are correct. A and B are two of the project sponsor's key responsibilities. Whereas, selecting the project team, C, and managing the subcontractors, D, is the responsibility of the project manager. It should be noted that the project manager reports to the project sponsor and so indirectly the project sponsor would be aware of the project manager's activities.

**1.8: Which of the following responsibilities relate to the Project Manager's job description?** (PMT2ed p.30)

- a. To achieve the critical success factors of finishing the project on time and within budget.
- b. To select the project team members.
- c. Marketing the project/product to potential buyers.
- d. To develop an efficient build-method.

**1.8 Answer:** A, B and D are key project manager's responsibilities. Time and budget, A, are two of a number of critical success factors the project manager has to achieve. It is usually the project manager's responsibility to select the members of his own project team, B. Although the project manager might be involved with marketing the project/product to potential buyers, C, it is really the project sponsor's responsibility. Developing an efficient build-method to make the project, D, is a key project manager responsibility.

**1.9: Which of the following responsibilities relate to the Project Steering Board?** (PMT2ed p.32)

- a. The project steering board consist of a small group of **eminent professionals** who have a wealth of knowledge and experience in the field of the company and the disciplines of the project.
- b. They provide an independent overview of the project's feasibility.
- c. They select the best projects to support the company vision and strategy.
- d. They are able to foresee the project's pitfalls, and offer impartial advice on how to make the project and implement it into its operating environment.

**1.9 Answer:** A, B and D are correct. The steering board usually consist of an independent group of experienced professionals who are able to look at the big picture and help the project manager foresee potential problems. Although they might advise on project selection, C, they are not responsible for selecting how the company invests in projects.

**1.10: Which of the following could the project manager use to define Project Success?**

(PMT2ed p.34)

- a. The project was finished before another company project.
- b. The project was mentioned in the local paper.
- c. The project finished on time.
- d. The project was completed under budget.

**1.10 Answer:** C and D are correct. To say your project was finished before another project, A, says nothing about its success. To say the project was mentioned in a local paper, B, says nothing about its success. To say the project was finished on time and within budget, C and D are both critical success factors.

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**PMT2ed, Chapter 2: Project Lifecycle** (PMT2ed p.36)

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**2.1: Which of the following attributes relate to the project lifecycle?** (PMT2ed p.37)

- a. The project is subdivided into phases.
- b. Each phase produces a distinct deliverable.
- c. Each phase repeats itself many times over the duration of the project
- d. Subdivide the project into work packages.

**2.1 Answer:** A and B are correct. A and B are correct because the lifecycle subdivides the project into phases with a distinct deliverable. C is incorrect because the phases are not repeated, but sequential, and d is also incorrect because it is the WBS that subdivides the scope of work into work packages.

**2.2: Which of the following examples relate to the classic four phase project lifecycle model?** (figure 2.2) (PMT2ed p.38)

- a. Initiate / Plan / Execute / Close.
- b. Start / Design / Make / Commission.
- c. Train / Operate / Sell / Accounts.
- d. Identify Stakeholders / Determine Stakeholders' needs / Communicate / Closeout Report.

**2.2 Answer:** A and B are correct. The first phase starts or initiates the project. The second phase produces detailed plans and designs for the project. The third phase makes or executes the project. The last phase commissions and closes out the project. Although C and D are project activities, they are not the titles of the classic four phase model.

**2.3: Which of the following describes a Project Phase?** (PMT2ed p.40)

- a. A collection of logically related project activities that culminate in the completion of one or more deliverables.
- b. A beneficial grouping of similar work and similar skills to increase the project's efficiency and productivity.
- c. A project phase is linked to the phases of the moon as it waxes and wanes.
- d. A phase relates to the harmonious nature of the working conditions – they are either in-phase or out-of-phase.

**2.3 Answer:** A and B are correct. A phase is a logical grouping of work to produce a distinct deliverable, whereas C and D do not relate to project work.

**2.4: What are the input documents into the Project Feasibility Phase?** (PMT2ed p.38)

- a. Project Plan.
- b. Business Case.
- c. Project Charter.
- d. Phase Charter.

**2.4 Answer:** B, C and D are correct. These three documents are required before the project feasibility phase can start. A is incorrect because the project plan will not have been developed at this stage of the project.

**2.5: Why is it important to measure the Level of Effort?** (figure 2.4) (PMT2ed p.41)

- a. The level of effort is a useful indicator for the project manager to quantify the amount of work to be performed and the amount of work completed to timenow.
- b. It helps to determine the rate of productivity.
- c. The level of effort is the amount of energy required to push the project along.
- d. To confirm the level of effort curve is following the expected or forecasted rate of work.

**2.5 Answer:** A, B and C are correct. The level of effort is an integration of effort and time which enables the project manager to forecast future performance. D is incorrect.

**2.6: Why is the Level of Influence sometimes plotted against the Cost of Change?** (figure 2.5) (PMT2ed p.42)

- a. To help the project manager gauge his level of influence against his salary.
- b. To help to show that the greatest level of influence is at the beginning of a project when the design is still being developed.
- c. To help to show that the lowest cost of change is at the beginning of the project when there is the least impact on work already done.
- d. The cost of change curve shows that it is less expensive to make a change as the project nears completion.

**2.6 Answer:** B and C are correct. The level of influence highlights the benefit of getting the design right before the execution phase. A and D are incorrect.

**2.7: Why is the project lifecycle sometimes expanded to include the phases before and after the project?** (figure 2.7) (PMT2ed p.44)

- a. To appreciate the strategy that established the need for the project.
- b. To ensure that the company realises benefits from the project.
- c. So that the project manager can plan personal holidays.
- d. To form the basis of a unified project methodology.

**2.7 Answer:** A, B and C are correct. The project lifecycle shows how the phases are interlinked and how a project methodology could run like a thread through the phases.

**2.8: Why is the project lifecycle used to show lifecycle costing?** (figure 2.8) (PMT2ed p.46)

- a. To show when the project manager will be paid.
- b. To enable the project sponsor to see the accumulated income and expenses over the life of the project.
- c. To enable the project sponsor to trade-off the cost of the design and construction with the cost of maintenance, upgrading, expansion and disposal over the life of the facility.
- d. To enable the project sponsor to see the breakeven point and the payback period.

**2.8 Answer:** B, C and D are correct. Looking at data over the life of a project gives a more realistic picture of cause and effect for strategic planning.

**2.9: What are the benefits of PPP (Public Private Partnerships) contracts?** (PMT2ed p.47)

- a. For the government to be seen to be friendly with the private sector.
- b. To pass the different types of facility risk to those companies best able to manage the risk.
- c. To enable governments to be seen as providing facilities without having an impact on the public purse, for example, a toll road.
- d. As a partnership where the government pays the private company a rent for building a public facility.

**2.9 Answer:** B, C and D are correct. The government issues the licence to a private consortium to fund, build and operate a facility for public benefit. The cost/toll from the users funds the facility. D is also correct where private companies have built or upgraded schools and hospitals and the government pays a rent for the facilities – this is designed to improve the government's cash flow.

**2.10: Why is the project lifecycle used to show project lifecycle contracts?** (figure 2.9) (PMT2ed p.48)

- a. So that the project manager can plan the best time to take holidays.
- b. To graphically show the extent of the different types of contracts used on projects.
- c. To show the best time to start the next project.
- d. To help the project sponsor select the most appropriate type of contract.

**2.10 Answer:** B and D are correct. Overlaying the different types of contracts on the project lifecycle gives a visual presentation of the contracts.

### **PMT2ed, Chapter 3: Project Management Process (PMT2ed p.50)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

#### **3.1: Which of the following attributes relate to a Project Management Process?**

(PMT2ed p.50)

- a. A set of interrelated actions and activities that are performed to achieve a pre-specified set of products, results or services.
- b. A process of meetings.
- c. A process of reports.
- d. A process of quality audits.

**3.1 Answer:** A is correct. This is the body of knowledge definition. B, C and D are incorrect uses of the term.

#### **3.2: A process is a term widely used to explain how to make a product. Which of the following would generally be considered a process? (PMT2ed p.52)**

- a. The brewing of hops to make beer.
- b. Drinking beer is a social process.
- c. The refining of crude oil to diesel and engine oil.
- d. Driving is a travel process.

**3.2 Answer:** A and C are correct where a raw material is converted into a useable product. B and D are incorrect uses of the term.

#### **3.3: Which of the following relate to the Eastonian process? (PMT2ed p.53)**

- a. A process developed by a professor in Estonia.
- b. Input / process / output.
- c. Named after David Easton.
- d. The input-process-output arrangement is widely used by the body of knowledge to explain many of the techniques and methods within each knowledge area.

**3.3 Answer:** B, C and D are correct. A is incorrect because the Eastonian process is named after a person, David Easton, therefore C is correct. B and D are also correct, because many of the special project management techniques can be presented as documents input – process – documents output.

#### **3.4: Which of the following relate to how a project manager would use the Eastonian process to calculate the critical path? (table 3.1) (PMT2ed p.53)**

- a. The critical path is made up of all the activities required to complete the project.
- b. The activity float is an input into identifying the critical path.
- c. An activity is on the critical path when the float is zero.
- d. Activities with a target start date are always on the critical path.

**3.4 Answer:** B and C are correct. There are a number of steps to determine the critical path, which include the two mentioned here; calculate the activity float and highlight the activities with zero float. A and D are incorrect.

#### **3.5: Which of the following relate to Fayol's Management Process? (PMT2ed p.54)**

- a. Fayol's management process was first used after the second world war.
- b. Fayol's management process includes; planning, organizing, commanding, directing and controlling.
- c. Fayol's principles are fundamentally universal and apply to managing most types of work most of the time.
- d. Fayol's management process outlined a systematic management process that integrated all aspects of the work. This is now referred to as project integration management.

**3.5 Answer:** B, C and D are correct. Fayol's management process consists of planning, organizing, commanding, directing and controlling. These processes are similar to the project management process. A is incorrect as Fayol's management process was first developed in 1916.

**3.6: Which of the following relate to the Project Management Process? (PMT2ed p.56)**

- a. The Project Management Process Groups includes the initiating processes, planning processes, execution processes, monitoring and controlling processes, and closing processes.
- b. The project management process is best used on projects that are exactly the same.
- c. The project management process is a logical grouping of project management inputs, tools and techniques, and outputs.
- d. The monitoring and controlling process tracks the project's progress by regularly monitoring and measuring progress and identifying any variances from the project plan. This means that corrective action can be taken and ensures that the project objectives are met.

**3.6 Answer:** A, C and D are correct. These three answers are extracts from the PMBOK's definition. B is incorrect as projects, by definition, are unique.

**3.7: Which of the following relate to the project initiation process? (PMT2ed p.56)**

- a. The initiation process is a company ritual of admitting someone into the project team.
- b. The project sponsor starts the initiation process by outlining the requirements in a business case and a project charter, giving the project manager the authority to start the project and use company resources.
- c. The initiation process makes the go/no-go decision to start the project or phase.
- d. When the project is complete, the initiation process terminates the project.

**3.7 Answer:** B and C are correct. The initiation process performs all the activities to start a phase or project. A and D are incorrect because the initiation process is not a ritual or the process that end a project.

**3.8: Which of the following relate to the project planning process? (PMT2ed p.56)**

- a. A project plan is designed to improve the project progress.
- b. The planning process develops a plan for marketing the project.
- c. The planning process develops a suitable build-method for the facilities available.
- d. The planning process develops the execution strategy to make the best use of the available resources.

**3.8 Answer:** C and D are correct. The planning process outlines how to make the project's main deliverables. The build-method and the execution strategy are two of the main components of the project plan. A and B are incorrect because the project plan focuses on the project and not other management activities such as marketing.

**3.9: Which of the following relate to the project execution process? (PMT2ed p.56)**

- a. A sacrificial offering at the beginning of a project to help address the team members' superstitions.
- b. The execution process makes the project's main deliverable as per the project plan developed in the previous section.
- c. The execution process makes the project's main deliverable as per the build-method and execution strategy developed in the previous section.
- d. The go/no-go decision confirms the cost-to-complete does not exceed the benefits of finishing the project.

**3.9 Answer:** B, C and D. The build-method and the execution strategy are two of the main components of the project plan, and the go/no-go decision confirms the project is likely to realize benefits for the company. A is incorrect.

**3.10: Which of the following relate to the project closing process? (PMT2ed p.56)**

- a. It is the site manager's responsibility to close the project every day. This process ensures that the site is safe.
- b. The closing process commissions the project by testing its performance in the agreed manner to confirm it has reached the design requirements.
- c. It is the project manager's responsibility to compile a project closeout report as part of the closing process.
- d. It is the project manager's responsibility to handover the project to the client.

**3.10 Answer:** B, C and D are correct. These answers correctly outline a number of the closing process's functions. A is incorrect as closing the site every night does not relate to the closing process.

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## **PMT2ed, Chapter 4: Project Methodology (PMT2ed p.58)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **4.1: You have been approached by the CEO to develop a Project Methodology for the company to manage projects. Which of the following statements would apply?**

(PMT2ed p.58)

- a. A project methodology systems approach is a means of implementing a project or a change which, in turn, is a means of implementing corporate strategy
- b. The PMBOK 5ed (2012) defines a Methodology as, a system of practices, techniques, procedures, and rules used by those who work in a discipline.
- c. A research method is a means of carrying out an experiment.
- d. An experiment is a means of testing in a laboratory a hypotheses.

**4.1 Answer:** A and B are correct. A project methodology is a systems approach to integrate all aspects of a project. C and D are accurate statements, but they do not apply to the management of projects.

### **4.2: Which of the following relate to a Systems Approach? (PMT2ed p.58)**

- a. A systems approach uses the WBS to subdivide the scope of work into manageable work packages so that each work package can be managed autonomously.
- b. A systems approach uses cybernetics to study cognitive behaviour and how team members interact with each other.
- c. Systems thinking is concerned with an understanding of the whole system by examining the linkages and interactions between the elements that compose the entire system.
- d. A Project Methodology Systems Approach shows graphically how the project lifecycle is subdivided into a sequence of interrelated phases and how each phase can be subdivided into the four project management processes which, in turn, can be further subdivided into a number of sub-processes

**4.2 Answer:** C and D are correct explanations from the text. A is incorrect as it is the opposite of systems thinking by subdividing and managing autonomously, and B is incorrect as it does not relate to project management.

### **4.3: Which of the following relate to Competitive Advantage? (PMT2ed p.58)**

- a. An inter-company sports game where the fastest competitor wins.
- b. Where an organization acquires or develops an attribute or combination of attributes that allows it to outperform its competitors.
- c. Where a company's attributes includes access to natural resources, such as high grade ores or inexpensive power, or access to highly trained and skilled project teams.
- d. A contest between independent organisms to gain social status.

**4.3 Answer:** B and C are correct where a company strives to be better than its competition. A and D are incorrect as they do not relate to project management.

### **4.4: Which of the following relate to the project Initiation Process? (figure 4.3) (PMT2ed p.62)**

- a. The initiation process is an accepted ritual to admit someone into the project team.
- b. The go/no-go decision is made by the phase owner and should confirm the business case and phase are still feasible before committing company resources.
- c. In the initiation phase the project charter is developed. The project charter translates the business case into project objectives and outlines a build-method to achieve them.
- d. The initiation process selects the project sponsor responsible for the project.

**4.4 Answer:** B and C are correct. The initiation process starts the project phase and outlines, through the project charter, how to make the project. A is incorrect as it does not relate to project management, and D is also incorrect as the project sponsor's selection is made at the business case phase.

### **4.5: Which of the following relate to the project Planning Process? (figure 4.4) (PMT2ed p.63)**

- a. A feasibility study is conducted to confirm the project is feasible within the identified constraints.
- b. The build-method to make the deliverables is developed from the PBS and WBS.
- c. The execution strategy considers the resource requirements and resources available (in-house, contractors and outsourcing).
- d. The project manager organises team building activities to encourage the team members to work closer together.

**4.5 Answer:** A, B and C are correct. A is correct because it is essential to conduct a feasibility study to confirm it is feasible to achieve the project objectives. B is correct because the build-method outlines how to make the deliverables. C is correct as the execution strategy considered who will make the project. D is incorrect as team building is not really part of the planning process.

**4.6: Which of the following relate to the project Design Process?** (figure 4.4) (PMT2ed p.64)

- a. The design process uses a serendipity approach to convert novel ideas into a feasible project.
- b. Because projects are stand alone facilities they do not need to comply with the national planning requirements.
- c. The design process confirms the configuration of all components and ensures that they work effectively together.
- d. The design process confirms the new configuration of components integrates effectively with the existing facilities.

**4.6 Answer:** C and D are correct. They correctly outline that the design process must check the configuration of the project components and existing facilities. A and B are incorrect.

**4.7: Which of the following relate to the project Execution Process?** (figure 4.5) (PMT2ed p.64)

- a. Instructions are issued to the project workforce in the agreed manner.
- b. Performance is monitored, assessed and controlled where necessary to meet the project objectives.
- c. Scope changes are logged, assessed by the nominated experts, and decisions communicated in the agreed manner.
- d. A certificate of completion is issued by the project manager when the project is ready to be commissioned.

**4.7 Answer:** All the answers are correct as they outline different aspects of the execution process.

**4.8: Which of the following relate to the project Commissioning Process?** (figure 4.6) (PMT2ed p.65)

- a. Model testing the project to ensure that the project will achieve the strategic objectives.
- b. The commissioning process inspects, tests and commissions the deliverables to confirm they have been made as per the plan, and that the deliverables will operate effectively in the operating environment.
- c. The commissioning process commissions the project manager to manage the project.
- d. The commissioning process disposes of the project and returns the site to its original condition.

**4.8 Answer:** B is correct. The commissioning process ensures that all the components of the project work together so that the project can achieve its design objectives. A is incorrect because model testing should be performed during an earlier phase. C is incorrect because project managers are not commissioned, and if they were it would occur at the beginning of the appointment not at the end. D is incorrect as the disposal takes place during the decommissioning phase.

**4.9: Which of the following relate to the project Handover Process?** (figure 4.6) (PMT 2ed p.65)

- a. The handover process formally terminates and ends the project work. This cancels all contracts, finalizes and closes off all accounts, disposes of assets, and disbands the team.

- b. The handover process includes the training of the operators, the as-built drawings, the operator's manuals and the transfer of ownership.
- c. The handover process removes all responsibility from the project manager for the previous phases.
- d. The handover process ensures that the project manager retains ownership of the project into the next phase.

**4.9 Answer:** A and B are correct. A is correct as the handover process is required to officially confirm the project has finished and the project manager is handing over the project to the client. B is correct as there might be a number of items that need to be handed over including the training of the client's operators. C is incorrect as the project manager will always be held responsible for the project work. And D is incorrect as the ownership of the project is handed over from the project manager to the client.

**4.10: In figure 4.7, which of the following outline the extent of a manager's responsibility? (PMT2ed p.66)**

- a. The CEO and the board of directors are only responsible for developing the corporate strategy.
- b. The project sponsor is responsible for developing the business case solution, overseeing the project phases and implementing the project into its operating environment until the project realizes benefits for the company.
- c. The project steering board is responsible for guiding and advising the project sponsor and the project manager on how to achieve the corporate and project objectives. It also considers how the project interfaces with other company interests.
- d. The project manager is only responsible for the project phases, as outlined in the project charter, extending from the feasibility phase through to the project commissioning phase.

**4.10 Answer:** B, C and D are correct. B is correct as the project sponsor is responsible for the business case being successful. C is also correct as the steering board are a group of eminent experts who are able to look at the big picture for the benefit of the project and the company. D is also correct as, technically, the project manager is only responsible for the project phases, however, because of the PM's knowledge of the project area, he might be involved in other activities, such as, developing the business case. A is incorrect as the CEO and board of directors are ultimately responsible for everything that happens in the company, including all the projects.

## **PMT2ed, Chapter 5: Project Stakeholder Management (PMT2ed p.68)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**5.1: In the PMBOK 5ed why has the Project Stakeholder Management knowledge area been separated out from Project Communication Management knowledge area?**  
(PMT2ed p.68)

- a. The PMBOK wanted to create a new knowledge area to make it an even number – ten knowledge areas.
- b. The Project Communication Management knowledge area was too big.
- c. The main difference between the two knowledge areas is that communication is about the mechanics of supplying information (content, timing, medium, etc.), whereas stakeholder management is about engaging, influencing and involving stakeholders in the decision-making process.
- d. Influencing stakeholders' actions requires different skills to communicating information.

**5.1 Answer:** C and D are correct. They refer to encouraging the participation and involvement of the stakeholders in the decision-making process.

**5.2: Who of the following are generally considered key project stakeholders?** (PMT2ed p.72)

- a. Someone who invests in the project.
- b. Someone who likes reading about the project.
- c. Someone who lives next door to someone working on the project.
- d. Someone who might affect or be affected by the project.

**5.2 Answer:** A and D are correct. A key stakeholder is someone who could have an impact on the project or be impacted by the project.

**5.3: You are managing a project which is in its first month of execution. In a project meeting a key stakeholder asks for some changes to be immediately made to the scope of work. You realize that the changes being asked for will need the Project Plan and the Scope baseline to be updated. As the project manager, which course of action would you take?**

- a. Make the changes immediately as requested.
- b. Analyze the impact of the change to the triple constraints (time, cost and quality).
- c. Generate a change request and submit it to the scope change control.
- d. Refuse to make the change as it is a deviation from the approved Scope of work.

**5.3 Answer:** C is the correct answer. Any changes being requested to the approved plan need to be formally reviewed by the Change Control Board. Option A is not the correct answer as no changes should be made without formal approval. Option B is incorrect because the scope change control process needs to consider all aspects of the project. Option D is clearly incorrect as any project is bound to have changes and the very purpose of change control is to ensure that changes are governed and controlled in a systematic manner.

**5.4: Which of the following would be considered as effective ways to involve key stakeholders in the project?**

- a. Invite them for lunch at the site canteen.
- b. Invite them to attend a project progress meeting as a witness.
- c. Invite them to participate in a problem solving and decision-making workshop.
- d. Ask them if they are interested in managing part of the project.

**5.4 Answer:** C is correct. Inviting key stakeholders to visit the site and witness a project meeting is a step in the right direction, but true involvement has to encourage interaction where the stakeholders' views, concerns and suggestions are considered as part of the process. A, B and D are incorrect.

**5.5: Which of the following are key stakeholders in the Strategy phase of the project lifecycle?** (figure 5.1) (PMT2ed p.70)

- a. The CEO is a key stakeholder who is responsible for developing corporate strategy.
- b. The project manager is a key stakeholder for all matters relating to the project.
- c. The operations manager is a key stakeholder responsible for developing the company operations plan.
- d. The different regulators are key stakeholders as they inspect the project.

**5.5 Answer:** A is correct, as the CEO and the board of directors are responsible for establishing the company's strategy. B, C and D are incorrect as the three parties would not be involved in the strategy phase other than as technical advisors on request to the CEO.

**5.6: Which of the following skills would you expect the key stakeholders in the Strategy phase to possess?** (figure 5.1) (PMT2ed p.70)

- a. Visionary and critical thinking skills to enable them to produce a strategic direction for the company.
- b. Project planning skills to enable them to produce a fully integrated project plan.
- c. Entrepreneurial skills to enable them to spot opportunities to exploit.
- d. Trade skills in the field of the company's expertise.

**5.6 Answer:** A and C are correct. Each phase produces a different set of deliverables and therefore one would assume the stakeholders would require a different set of skills. In the strategy phase the stakeholders would need skills associated with spotting entrepreneurial opportunities and establishing a strategic direction. B and D are incorrect as the project plan and trade skills relate to the project phase.

**5.7: Which of the following are key stakeholders in the Project phase of the project lifecycle?** (figure 5.1) (PMT2ed p.70)

- a. The project manager is a key stakeholder responsible for achieving a number of critical success factors.
- b. The procurement suppliers are key stakeholders because they not only supply the components and materials but also have a wealth of experience gained by supplying similar products to other projects.
- c. The marketing manager.
- d. The general manager.

**5.7 Answer:** A and B are correct. The project manager is responsible for achieving the objectives outlined in the project charter, and the procurement suppliers could be useful stakeholders providing useful information. C and D are incorrect as they are not generally involved in the project phases.

**5.8: Which of the following skills would you expect the key stakeholders in the Project phase to have?** (figure 5.1) (PMT2ed p.70)

- a. Investigative and evaluation skills to enable them to confirm the business case is feasible within the defined constraints.
- b. Motivational speaking skills encouraging the team members to progress along their career path.
- c. Project planning skills to enable them to produce a fully integrated project plan.
- d. Project discipline related skills enabling the team members to make the project as outlined in the build-method.

**5.8 Answer:** A, C and D are correct. The project manager needs to be able to confirm that the business case and project are feasible within the defined constraints. B is incorrect as motivational speaking, although a useful project management skill, is not focused on the project phase.

**5.9: Which of the following are key stakeholders in the Operation phase of the project lifecycle?** (figure 5.1) (PMT2ed p.70)

- a. The project manager is a key stakeholder managing the project.
- b. The project sponsor is a key stakeholder trying to realise the benefits outlined in the business case.
- c. The operations manager is a key stakeholder implementing the facility into the operating environment.

d. The project site manager is a key stakeholder responsible for the management of the project on site.

**5.9 Answer:** B and C are correct. The project sponsor will be involved in the operation phase up until the change (project) has realised benefits for the company (often quantified by the payback period). The operations manager is responsible for implementing the project into the operations environment and the continuing operation of the facility.

**5.10: Figure 5.2 suggests that project managers usually Communicate with outside stakeholders who are at their own corporate level. Which of the following statements support this argument?** (figure 5.2) (PMT2ed p.72)

a. Project managers usually communicate with outside stakeholders of their own level because they find it easier to communicate with people who are at the same socio-economic level.

b. Project managers usually communicate with outside stakeholders at their own level of responsibility and authority because they are involved in making similar decisions.

c. Managers usually communicate with outside stakeholders of their own age.

d. Managers usually communicate with other managers of the same technical ability.

**5.10 Answer:** B and D are correct. To explain in reverse it would be unusual for a junior team member to network with the CEO of another company, because if the junior person was asked to make a decision it would have to be referred to the relevant technical person and the person with the authority to make the decision. A is incorrect, a managers socio-economic is not usually an issue, and a managers age might be a general guide, but not the reason.

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## **PMT2ed, Chapter 6: Corporate Strategy Phases (PMT2ed p.78)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **6.1: Which of the following relate to Corporate Strategy? (PMT2ed p.78)**

- a. The corporate strategy is an ad hoc approach that can quickly take advantage of opportunities as they arise.
- b. The Corporate Strategy Phase is a conscious and concerted effort by company executives to outline the purpose and aims of the company.
- c. The corporate strategy details the company's culture, philosophy and the way the company intends to do business.
- d. The corporate strategy builds up defences to protect the company from being attacked by other companies.

**6.1 Answer:** B and C are correct. The corporate strategy gives the company direction and outlines how the company intends to do business.

### **6.2: Why is it important to integrate the corporate strategy with the Project Lifecycle? (figure 6.1) (PMT2ed p.79)**

- a. It shows how the output from each phase becomes the input for the following phase.
- b. The output from the business case becomes the corporate vision.
- c. The output from the corporate vision phase is the corporate vision and values statements.
- d. The corporate strategy does not affect the project strategy as the two are unconnected.

**6.2 Answer:** A and C are correct. A is correct because the phases' outputs and inputs run like a thread through all the phases. C is correct the output from the corporate strategy is included in the corporate vision and corporate values statements. B is incorrect because the business case is the strategy to achieve the vision.

### **6.3: Which of the following relate to the Corporate Vision? (table 6.1) (PMT2ed p.80)**

- a. The corporate vision outlines the desired future state of an organization, a company, an enterprise or a public department in terms of its fundamental objectives, position and strategic direction.
- b. Corporate hindsight is the opposite of corporate vision as it enables project managers to see what has happened in the past.
- c. 20/20 vision enables project managers to foresee potential problems
- d. A desirable corporate vision enhances the corporate brand and encourages people to align their involvement with the company.

**6.3 Answer:** A, B and D are correct. A outlines a company's long term objectives. B shows the link between vision and hindsight. D outlines the link between the corporate vision and the company's brand. An attractive brand encourages people to want to be involved with the company and buy its products. C is incorrect 20/20 vision refers to a person's physical sight not their ability to see into the future.

### **6.4: Which of the following relate to the Corporate Values? (table 6.2) (PMT2ed p.82)**

- a. The corporate governance ensures that the go/no-go decision made at the beginning of each phase is made by the appointed person (project sponsor) in conjunction with the project manager and the project steering board.
- b. The corporate governance expects the project manager to take whatever authority is required to achieve the project objectives.
- c. Project governance ensures and confirms that the project's objectives align with the corporate strategic objectives.
- d. Corporate governance ensures that high risk projects do not prevent the company achieving a return on its investments.

**6.4 Answer:** A and C are correct. A ensures that all important decisions that consume company resources are made by the nominated person(s). C ensures that the project objectives align with the corporate objectives and not the other way round. B is incorrect as the project manager should be given sufficient authority to manage the project. D is incorrect, it should be the opposite, and the corporate governance should ensure that the company is not involved in high risk projects that breach the corporate acceptable level of risk.

**6.5: Which of the following relate to the corporate acceptable Level of Risk? (table 6.2) (PMT2ed p.82)**

- a. The corporate and project governance ensures that the level of project risk is within the corporation's acceptable level of risk; this filters out high risk ventures.
- b. The project manager is responsible for addressing all the risks that might compromise the project objectives.
- c. The project sponsor is encouraged to peruse high risk business cases as these will have the greatest return on invest.
- d. The corporate level of acceptable risk does not apply to projects which, by definition, can be high risk.

**6.5 Answer:** A and B are correct. A is correct as the corporate governance sets the allowable level of risk that determines which projects are selected. B is correct as the project manager is responsible for identifying and mitigating all risks that might impact the project objectives. C and D are incorrect.

**6.6: Which of the follow relate to the corporate governance of Stakeholders' requirements? (table 6.2) (PMT2ed p.82)**

- a. The corporate governance ensures that the selected business case aligns with the key stakeholders' requirements (needs and expectations).
- b. Corporate governance only applies to stakeholders that have a financial interest in the company and the project.
- c. The corporate governance discourages stakeholder involvement so that the project manager can make decisions quickly and decisively.
- d. The corporate governance ensures that the key stakeholders are engaged at a level that is commensurate with their importance to the project and the organisation.

**6.6 Answer:** A and D are correct. A ensures that the selected business case addresses the needs of the key stakeholders. D ensures that the key stakeholders are identified and prioritised as these are the very people who could derail the project. B and C are incorrect.

**6.7: Which of the following relate to Corporate Requirements? (PMT2ed p.84)**

- a. Corporate requirement are a condition or capability that must be present in a product, service or result to satisfy a contract or other formally imposed specification.
- b. The project manager quantifies the corporate requirements.
- c. The operations manager quantifies the corporate requirements.
- d. A corporate requirement outlines what the company must do to achieve its corporate vision.

**6.7 Answer:** A and D are correct. A is the PMBOK definition and D is correct because it links the corporate requirements to what the company has to do to achieve its own corporate vision. B and C are incorrect as neither the project manager or operations manager are responsible for quantifying the corporate requirements; this is the responsibility of the CEO, BoD or portfolio manager. It might be that the responsible manager includes the project manager or operations manager in the process.

**6.8: Which of the following relate to achieving a company's Competitive Advantage? (table 6.3) (PMT2ed p.84)**

- a. Competitive advantage can be achieved by continually improving products, production facilities and services.
- b. Competitive advantage is an inter-team competition to encourage team building.
- c. Competitive advantage is achieved by the project manager enhancing his networking skills.
- d. Competitive advantage uses entrepreneurial skills to spot and exploit beneficial opportunities.

**6.8 Answer:** A and D are correct. A is correct because it is generally accepted that companies that constantly offer the latest innovative new features keep loyal customers interested and competitors at bay. D is correct because spotting and exploiting beneficial opportunities enables companies to stay at the leading edge. B is incorrect as team-building is not related to corporate competitive advantage, and C is also incorrect as the project manager is not directly responsible for corporate competitive advantage.



**6.9: Which of the following relate to a Business Case?** (table 6.4) (PMT2ed p.86)

- a. A business case provides justification for undertaking a project in terms of analyzing the benefit, cost and risk of alternative options and rationale for the preferred solution.
- b. The general manager uses a business case to carry important documents.
- c. A business case's purpose is to obtain management commitment and approval for investment in the project to help achieve the company's strategic objectives.
- d. It is the project manager's responsibility to develop and present the business case.

**6.9 Answer:** A and C are correct. A is correct because a business case sets out a justification for a certain course of action, there might be more than one business case so there will be an element of ranking. C is correct because it is the company executive's responsibility to accept or reject the presented business cases, if the business case is accepted this will imply a commitment of resources. B is incorrect as it is misusing the term, and D is incorrect because the business case is owned by the project sponsor not the project manager.

**6.10: What is the name of the document that compares the estimated project costs and the forecast income after completion?**

- a. Balanced scorecard.
- b. Cost-Benefit analysis.
- c. Feasibility study.
- d. Business case.

**6.10 Answer:** B is correct. The cost-benefit analysis (CBA) compares all the estimated costs to make the project with the forecasted income from the operation of the project. The CBA is usually embedded in the business case and the feasibility study which look at a much wider scope.

## **PMT2ed, Chapter 7: Project Feasibility Phase (PMT2ed p.88)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **7.1: Which of the following relate to the project Feasibility Study phase? (PMT2ed p.88)**

- a. The project sponsor is responsible for conducting the project feasibility study phase.
- b. The project manager is responsible for conducting the project feasibility study phase.
- c. The feasibility study prioritizes the business cases so that the most viable can be carried out first.
- d. The feasibility study is used to confirm that the project can achieve the objectives within the defined constraints, as outlined in the business case and/or project charter.

**7.1 Answer:** A, B, C and D are correct. A and B need to be clarified as some companies might prefer the project sponsor to be responsible for the feasibility study, while other companies might prefer the project manager to be responsible. C could be up for interpretation; should the business cases be prioritised in the business case phase or feasibility study phase – or both. D is one of the main reasons for a feasibility study that could lead to a trade-off between the project objectives and the constraints.

### **7.2: Where in the project lifecycle would the project manager conduct the Feasibility Study? (figure 7.1) (PMT2ed p.89)**

- a. At the beginning of the strategy phases.
- b. At the beginning of the business case phase.
- c. At the beginning of the project phases.
- d. At the beginning of the operation phases.

**7.2 Answer:** C is correct. This question is a little bit of a curved ball because the feasibility of aspects of any project will be considered progressively as new information becomes available but technically an idea or business case does not become a project until the project charter is produced and that does not happen until the beginning of the project phases.

### **7.3: As project manager you have been asked by the project sponsor to produce a Project Charter. Which of the following relate to a Project Charter? (table 7.1) (PMT2ed p.90)**

- a. A document issued by the project initiator or sponsor that formally authorizes the existence of a project.
- b. A document that quantifies the project's profit and loss accounts.
- c. A certificate of completion that is given to the project sponsor by the project manager on completion of the project.
- d. A document that provides the project manager with the authority to apply organizational resources to project activities.

**7.3 Answer:** A and D are correct. The Project Charter officially initiates the project and gives the project manager the authority to use company resources. B and C are incorrect. B is more likely to be produced in the business case and/or feasibility study, and C does not apply to the Project Charter.

### **7.4: The Feasibility Study confirms that the project is feasible within the identified constraints. Which of the following constraints would normally be considered? (PMT2ed p.89)**

- a. The build-method.
- b. The execution strategy.
- c. The company's organization structure.
- d. The project lifecycle.

**7.4 Answer:** A and B are correct. These would fall under project constraints. C and D are incorrect as although these might be included in the feasibility study report they would not normally be considered as a constraint.

### **7.5: In project management speak, what is the Iron Triangle?**

- a. The Time-Cost trade-off.

- b. A metal framework which is part of the build-method to support the structure.
  - c. The configuration plan to confirm that all the components of the project will operate as intended.
  - d. The Time-Cost-Quality trade off.
- 7.5 Answer:** D is correct. A is incorrect because it does not include quality. B is incorrect as it is not a physical framework. C is incorrect as it is not related to the configuration plan.

**7.6: Which of the following relate to the Client's Corporate Requirements? (PMT2ed p.94)**

- a. The project must achieve certain financial requirements determined by the CEO and the board of directors.
- b. The level of risk is not considered as a corporate requirement.
- c. The client's corporate requirements includes the build-method to make the project.
- d. The CEO's main focus is on developing the annual report.

**7.6 Answer:** A is correct. The project must achieve certain financial objectives that would have been outlined in the business case and confirmed in the feasibility study. B is incorrect as the CEO sets the corporate level of acceptable risk. C is incorrect as the corporate requirement would not consider the build-method in any detail; this would fall under project constraints. And D is incorrect as the CEO is ultimately responsible for everything that happens within the company.

**7.7: Which of the following relate to Internal Project Constraints? (PMT2ed p.96)**

- a. The build-method outlines how to make the project with the equipment and skills available.
- b. How the project will help the company achieve competitive advantage.
- c. How the project will address capital rationing.
- d. The execution strategy considers who will complete the project work.

**7.7 Answer:** A and D are correct. A and D are both key constraints outlining how the project will be made and who will make it. B and C are incorrect as the feasibility study does not consider competitive advantage (see business case) and how to address capital rationing (see financial management).

**7.8: Why do companies impose a Design Freeze on projects? (figure 7.2) (PMT2ed p.96)**

- a. Companies impose a design freeze at the end of the design phase so that they do not have to make expensive changes during execution phase.
- b. The design freeze occurs in the winter when the weather is cold and serve.
- c. The project manager likes to delay the design freeze as long as possible so that the latest technology can be incorporated.
- d. The design freeze gives the procurement function longer to order the components.

**7.8 Answer:** A and C are correct. By freezing the design enables the project manager to complete the project with the latest technology and not have to make any changes during the execution phase which can be expensive. B is incorrect as it is not related to projects. And D is incorrect as using the latest technology will not extend the procurement cycle.

**7.9: Which of the following relate to the Internal Operational Constraints? (PMT2ed p.98)**

- a. The project manager is responsible for implementing the new facility.
- b. Checks the configuration of the components will work together and with existing facilities.
- c. Checks the project will be completed within budget.
- d. The operation manager has to employ the project team who are now out of work.

**7.9 Answer:** B is correct. The configuration function confirms the components (deliverables) work together in the operating environment. A is incorrect as it is the operations manager or project sponsor's responsibility to implement the project into the operating environment. C is incorrect as the project costs are separate to the operating costs. And D is incorrect as there is usually no connection between the project team and the operating team.

**7.10: Which of the following relate to the External Constraints? (table 7.5) (PMT2ed p.100)**

- a. The external regulators.
- b. The functional managers.
- c. The weather.
- d. The operations manager.

**7.10 Answer:** A and C are correct. External constraints relate to constraints outside of the project and the company. This would include the external regulators who could impose constraints on the project. These external constraints are usually non-negotiable; all projects must comply otherwise they are breaking the law. These requirements might be imposed through planning permission, licences, permits, clearances, right of ways, and insurances. The weather can impose external constraints such as rain, wind, heat, humidity. Sever conditions might influence the project's schedule. B and D are incorrect. The functional managers and operations managers, although outside the project team, are not usually considered as external parties.

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## **PMT2ed, Chapter 8: Project Definition Phase (PMT2ed p.102)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **8.1: Which of the following relate to the Project Definition Phase? (PMT2ed p.102)**

- a. The project definition phase uses entrepreneurial skills to explore new markets.
- b. The project definition phase explains the purpose of the project.
- c. The project definition phase gives the project an identity and a name.
- d. The project definition phase develops the preferred business case and project charter into a detailed project design and fully integrated project plan.

**8.1 Answer:** D is correct. The definition phase develops the preferred output from the project feasibility study to a higher level of detail, sufficient for the execution phase. A and B are incorrect as exploring new markets and the purpose of the project relate to the business case phase. C is incorrect as the project's identity is registered with the project charter in the project feasibility study phase.

### **8.2: Where is the Project Definition Phase positioned in the Project Lifecycle? (figure 8.1) (PMT2ed p.103)**

- a. After the business case phase.
- b. After the project feasibility study phase.
- c. Before the project execution phase.
- d. Before the project commissioning and handover phase.

**8.2 Answer:** B and C are correct.

### **8.3: Why does the project design phase start after the project feasibility study is complete? (figure 8.1) (PMT2ed p.103)**

- a. This is a trick question, the project detailed design is completed before the feasibility study so that the business case can be based on the complete design.
- b. The project design and project feasibility study are actually run in parallel because they each need information from the other.
- c. The project feasibility study considers all the business cases and selects the best option (project) to satisfy the corporate requirements.
- d. The project design's level of detail increases with each phase; business case, feasibility study and definition phase.

**8.3 Answer:** C and D are correct. The feasibility study might be considering a number of business cases to rank and select the best option. This is because it would be a waste of effort to produce a detailed design for every business case. This means the project feasibility study report is an input document required before the project definition phase can be initiated. D is correct as although the project's design is completed in the definition phase, it might be progressively developed within all the previous phases. A is incorrect as the project design is not completed before the business case. And B is incorrect because, although some aspects of the feasibility study and project design might be run in parallel, answer D would be a more accurate explanation.

### **8.4: Which of the following relate to the Project Design Process? (table 8.1) (PMT2ed p.104)**

- a. A linear sequence of design steps to create the design for the project.
- b. The project design process includes the design calculations, drawings and specifications required to make the project. The exact method of producing the design (build-method) will depend on the type of industry.
- c. Compiling the specifications are not part of the design process
- d. The design process uses networking skills to produce the design.

**8.4 Answer:** A and B are correct. They correctly outline the design process. C is incorrect as the specifications are an important part of the design process to document in a complete, precise and verifiable manner, the requirements, design, behaviour or other characteristics of a system, component, product, result or service. D is incorrect as networking skills are usually associated with entrepreneurship and marketing.

**8.5: Which of the following relate to the Project Design Philosophy? (table 8.2)**

(PMT2ed p.105)

- a. A structured guide to help the project manager and the project designer to make design choices.
- b. A networking process to contact the Greek philosophers.
- c. To study the 'meaning of life'.
- d. A design should achieve best practice.

**8.5 Answer:** A and D are correct. All professions have guidelines, standards and codes of best practices to help them achieve consistent designs. These are usually developed by experienced practitioners using empirical data. B is incorrect as it has nothing to do with project design. And C is incorrect as philosophy might be a study of the meaning of life but design philosophy is a study of the meaning of the design and the foundations of the design.

**8.6: Which of the following relate to Model Testing during the project definition phase?**

(PMT2ed p.107)

- a. Model testing is a means of exploring the capabilities of a design and minimizing the design risks without having to build the complete project or disrupt an operating facility.
- b. It is a means to provide a representation and assurance of whether the project objectives can be achieved.
- c. Is a similar process to fashion models strutting down the catwalk.
- d. A model toy of the project is made for the project member's children to play with.

**8.6 Answer:** A and B are correct. Modelling is the process of creating and using a device that duplicates the physical or operational aspects of a deliverable. Testing is the process of determining how aspects of a deliverable perform when subjected to specified conditions. C is incorrect as this is not related to project management. And D is incorrect because a model of the project is not a toy for the project manager's children to play with.

**8.7: Which of the following relate to Prototypes in the project definition phase?**

(PMT2ed p.108)

- a. A mock-up of the design.
- b. A method of obtaining early feedback on requirements by providing a working model of the expected product before actually building it.
- c. The CEO is responsible for developing the prototype.
- d. The project designer is responsible for developing the prototype.

**8.7 Answer:** A, B and D are correct. A prototype is a mock-up of the design, sometimes full scale that enables the designers, users and other stakeholders to visualize the project while it is still in the design and development stage. C is incorrect as the project designer, project manager or project sponsor would be responsible for making the prototype.

**8.8: Which of the following relate to Computer Simulation in the project definition phase? (table 8.3) (PMT2ed p.108)**

- a. Computer design is used to network with design experts.
- b. Computer design enables the project manager to freeze the design earlier in the design process.
- c. Computer modelling enables the project manager to walk-through the build-method.
- d. Design programmes such as finite element method (FEM) enable the designer to model the interaction and distribution of forces.

**8.8 Answer:** C and D are correct. Computer modelling enables the project manager to see realistic images of the project and see the implications as each stage of the project is produced. D is correct because FEM enables the design to be subdivided into units and forces between the units calculated. A is incorrect as computer design is not a tool for network with useful contacts. And B is incorrect as design freeze usually related to the rate of change of new technology.

**8.9: Which of the following relate to the Design Configuration? (table 8.4) (PMT2ed p.109)**

- a. An investigation of how the components of the proposed design will operate together and in conjunction with existing facilities.
- b. It is the project manager's responsibility to configure the project design team.
- c. It is the project manager's responsibility to configure the design of the project organization structure.
- d. It is the project manager's responsibility to configure the design of the planning and control system.

**8.9 Answer:** A is correct. Design configuration looks into how the different deliverables of the project work together and with the environment they will be implemented into. B, C and D are incorrect as configuration in this situation does not apply to the design team, organization structure or the planning and control system.

**8.10: Which of the following relate to the project definition phase's Closing Process?**

- a. At the end of the design phase the design office is closed.
- b. The closing process confirms the design deliverables are complete.
- c. The closing process makes the go/no-go decision to start the next phase.
- d. The closing process reviews the project team's performance during the phase.

**8.10 Answer:** B and D are correct. The closing process confirms the deliverables are complete and have been made to the required condition as outlined in the project design and project plan. The closing process reviews the project team's performance, what went right, what went wrong and lessons learnt. A is incorrect as although a capital project might set up a design office special for a project, it is unlikely it would close after the design phase because it would still be required to revise the drawings for design changes and also as-built drawings at the end of the project. C is incorrect as the closing process does not make the decision to initiate the following phase that is a separate process in the following phase.

**PMT2ed, Chapter 9: Project Execution Phase (PMT2ed p.110)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**9.1: Which of the following relate to the Execution Phase? (PMT2ed p.110)**

- a. Developing the project design.
- b. Developing the business case.
- c. Making the main deliverable of the PBS.
- d. Commissioning the project to ensure that it has been made to the client's requirements.

**9.1 Answer:** C is correct. The purpose of the execution phase is to make the main deliverable or project. A, B and D are incorrect as they refer to activities that take place in other phases.

**9.2: Which is the correct position of the Execution Phase in the Project Lifecycle with respect to the other phases (figure 9.1) (PMT2ed p.111)**

- a. The execution phase follows the business case phase.
- b. The execution phase is performed before the design phase.
- c. The execution phase is performed after the design phase.
- d. The execution phase is performed after the team building exercises are completed.

**9.2 Answer:** C is correct, the phase before the execution phase is the design phase.

**9.3: Which of the following phases uses the most company resources?**

- a. The business case phase.
- b. The feasibility study phase.
- c. The design phase.
- d. The execution phase.

**9.3 Answer:** D is correct. The execution phase usually consumes the most resources on most projects most of the time. A, B and C are incorrect. It is for this reason that the execution phase is often felt to be the most important phase, although the influence curve suggests otherwise.

**9.4: Which of the following criteria relate to the decision to initiate the project execution phase?**

- a. The decision to initiate the execution phase is taken after the project manager has taken his annual holiday.
- b. The decision to initiate the execution phase considers the availability of resources to complete the scope of work.
- c. The decision to initiate the execution phase is based on the length of the critical path.
- d. The decision to initiate the execution phase confirms the business case is still addressing the corporate vision.

**9.4 Answer:** B and D are correct. The decision to initiate the execution phase must confirm the availability of resources to complete the work. This is particularly important for the execution phase as this phase is usually the most expensive and consumes the most resources. The initiation process must also confirm the project is still addressing the corporate vision and need that it is supposed to be addressing. A is incorrect as it is possible the project will start after the project manager has taken his holidays, but it will probably be that the project manager takes his holidays before the execution phase is initiated. C is incorrect as the length of the critical path is not part of the decision criteria.

**9.5: Which of the following relate to the project Build-Method? (table 9.1) (PMT2ed p.112)**

- a. The build-method outlines the sequence of project work.
- b. The build-method outlines where the work and materials will be located.
- c. The build-method outlines how the project sponsor will market the project to potential clients.
- d. The build-method outlines the physical training the project team members' will perform to build-up their strength.



**9.5 Answer:** A and B are correct. The build-method outlines how the project will be made, including the position of all the material and equipment. C is incorrect as the build-method does not include the marketing function. D is incorrect as the build-method does not relate to the health of the team members.

**9.6: Which of the following relate to the project Execution Strategy? (table 9.2) (PMT2ed p.116)**

- a. The execution strategy outlines who will perform the work.
- b. The execution strategy considers outsourcing the project work.
- c. The CEO uses the execution strategy to give the company direction.
- d. The CEO is responsible for developing the execution strategy.

**9.6 Answer:** A and B are correct. The execution strategy focuses on who will perform the work; this includes contractors and outsourcing. C is incorrect as the corporate vision gives the company direction. D is incorrect as the CEO is responsible for developing the corporate strategy, not executing strategy.

**9.7: Which of the following support the 'Make' decision? (table 9.2) (PMT2ed p.116)**

- a. Make the components in-house when the company has resources available.
- b. Use contractors to supplement the in-house work force if necessary.
- c. Make the components in-house to keep the work force employed even if it costs more and delays the project.
- d. Making components in-house is always quicker than outsourcing.

**9.7 Answer:** A and B are correct. It is normal to make the components in-house if the resources are available, and the in-house resources can be topped up by using outside contractors working alongside the company's work force. C is incorrect because if the in-house work force is more expensive and slower than outsourcing this should not impact on the project. D is incorrect as outside companies that specialize in a certain service or product will usually have specialist equipment and experience and, therefore, should be quicker and maybe cheaper.

**9.8: Which of the following support the 'Buy' decision? (table 9.3) (PMT2ed p.117)**

- a. Quality control is easier to apply when the work is being performed by another company.
- b. Buy the components when the in-house resources are over loaded.
- c. Buy the components when the company does not have the range of expertise to perform the work.
- d. Buy the components when it is cheaper than making them in-house.

**9.8 Answer:** B, C and D are correct. Outsourcing work is a means of addressing fluctuations in the workload. Project with a multi-disciplined scope of work might not have all the skills they need in-house, this might be because it is more cost effective to outsource the work if certain disciplines are only required occasionally. The cost differential is usually the trigger to outsource or buy components rather than make them in-house. A is incorrect as this partly depends on the quality control applied by the outside company, but certainly using in-house inspectors they will have the inconvenience of travelling to where the components are being made.

**9.9: Which of the following relate to how the project manager issues instructions? (PMT2ed p.110)**

- a. Issue instructions as per the procedures outlined in the project methodology.
- b. Verbal only instructions.
- c. Instructions issued at project meetings.
- d. Issue instructions electronically.

**9.9 Answer:** Essentially A, B, C and D are correct but need to be clarified. Project managers use a range of methods to issue instructions as they deem fit or prefer. However, one could argue that A is correct as the right method is the method outlined in the project methodology as this is the overarching methodology developed by the company and sold to the client. B is correct as issuing verbal instructions is correct, but should be backed up in writing to address misunderstanding. C is correct as issuing instructions at project meetings is normal

practice but should be confirmed in the minutes. D is correct as issuing electronic instruction is correct but it should be based on a previous understanding.

**9.10: Which of the following relate to how the project manager Closes the Execution phase?**

- a. The closing process issues a *'ready for commissioning'* certificate.
- b. It is the project manager's responsibility to close the project every day. This process ensures that the site is secure and safe.
- c. The closing process commissions the project by testing its performance in the operating environment.
- d. The project manager confirms the scope of work has been completed to the required condition but does not commission them.

**9.10 Answer:** A and D are correct. A document should be issued to say the execution phase is complete as per the project plan and the project is now ready for independent testing and commissioning. This might be known by different terms in different professions. D is correct as the project manager is responsible for confirming all the scope of work has been completed to the required condition and perhaps signed off by quality control. B and C are incorrect as B is using the wrong use of the term 'close', and the closing process does not commission the project in its operating environment.

## **PMT2ed, Chapter 10: Project Commissioning and Handover Phase (PMT2ed p.120)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **10.1: Which of the following outline the purpose of the Project Commissioning and Handover Phase? (PMT2ed p.120)**

- a. On the completion of a successful project the project manager is offered a managerial commission with the company.
- b. The Commissioning and Handover Phase officially verifies, tests and documents that the project work has been completed to the required condition and functions as per the requirements outlined in the project definition documents (scope of work and project design).
- c. This phase formally hands over the project to the client who officially approves and accepts the project.
- d. The APM BoK 5ed defines Commissioning as, the advancement of an installation from the stage of static completion to full working order and achievement of the specified operational requirements.

**10.1 Answer:** B, C and D are correct. The project is tested and run up in such a manner that it confirms it is able to work in the required operating environment. The handover process is used to officially hand the project from the project manager to the client or project sponsor. A is incorrect as this is the wrong use of the word 'commission'.

### **10.2: The Project Lifecycle shows the relative position of the Project Commissioning and Handover Phase. Which of the following statements are correct? (Figure 10.1) (PMT2ed p.121)**

- a. The certificate of completion from the project execution phase is an input document for the initiation of the project commissioning and handover phase.
- b. The project commissioning immediately follows the design phase.
- c. The commissioning and handover phase is immediately before the project disposal phase.
- d. The commissioning and handover phase is immediately after the project feasibility study phase.

**10.2 Answer:** A is correct. It is normal practice to have a document to confirm a phase has finished and is ready to proceed to the next phase. B, C and D are incorrect. B is incorrect as the execution phase follows the design phase. C is incorrect as the operation phase precedes the disposal phase, and D is incorrect as the design phase follows the feasibility study phase.

### **10.3: Which of the following relate to receiving the Deliverables? (Table 10.1) (PMT2ed p.122)**

- a. If the project manager is managing both the execution phase and the commissioning phase then the deliverables do not have to be handed over.
- b. The 'receiving the deliverables' formally transfers the deliverables and paperwork from the project execution phase to the project commissioning and handover phase.
- c. The transfer of the project requires the project to be physically moved from the building site to the commissioning site.
- d. The project manager is responsible for developing the 'receiving the deliverables' protocol.

**10.3 Answer:** B is correct. There should be a formal transfer between ALL phases even if the same person is managing successive phases (therefore A is incorrect). C is generally incorrect but there could be exceptions in the case of a ship that could be moved to another location for commissioning. D is incorrect as the protocol should be part of the approved companywide project management system. However, it should be noted that the project manager might be involved in developing the protocol because of expertise gained on previous projects.

### **10.4: Which of the following relate to Verifying the Scope of Work? (Table 10.2) (PMT2ed p.123)**

- a. The verification process confirms the project's final scope of work and final list of deliverables were manufactured to the required specifications and standards.
- b. The verifying process is used by the project manager to conceal hidden problems.

- c. The verification process justifies the expenditure on the project.
  - d. The verifying process commissions the project and makes it ready for operation.
- 10.4 Answer:** A is correct. The final scope of work would be the original approved scope of work, plus approved scope changes. The manufacturing to the required specification and standards would be confirmed by quality control. B, C and D are incorrect; the verifying process does not help the project manager conceal problems, it does not justify expenditure (that is carried out by the business case), and it does not commission the project, however, the verifying process is an input for the commissioning process.

**10.5: Which of the following relate to Testing and Commission the Project?** (Table 10.3) (PMT2ed p.124)

- a. The project is tested to find out its maximum performance.
- b. The testing process might use NDT (non destructive testing) to confirm the project has been made to the required condition.
- c. The commissioning process runs-up and adjusts the project to confirm it is reaching its design parameters.
- d. The commissioning process runs-up and adjusts the project to perform in its operating environment as outlined in the contract.

**10.5 Answer:** B, C and D are correct. Certain parts of the project might be tested using NDT, although this is usually done in the execution phase as part of in-process control. The commissioning process should run-up the project, this might require adjustment of the setting to achieve the optimum performance in line with the manufacturer's specification. This should also confirm the project will be able to operate in the operating environment. A is incorrect as the project is not generally tested to the extreme but rather tested to achieve the manufacturer's specifications.

**10.6: Which of the following relate to the project Handover Process?** (Table 10.4) (PMT2ed p.126)

- a. The handover process formally terminates and ends the project work. This cancels all contracts, finalizes and closes off all accounts, disposes of assets, and disbands the team.
- b. The handover process might include the training of the operators, producing the as-built drawings, producing the operator's manuals, and the transfer of ownership.
- c. The handover process includes a photographic album of the people involved in the project, their families and the social team building meetings.
- d. The handover process ensures that the project manager retains ownership of the project into the next phase.

**10.6 Answer:** A and B are correct. The handover process terminates the phase or project and produces a number associated documents. C is incorrect because although the handover process might include photographs of the project, it would not formally include social gatherings. D is incorrect because the whole purpose of the handover process is to handover ownership from the project manager to the client or project sponsor.

**10.7: Which of the following relate to Terminating the project commissioning phase or project?** (Table 10.5) (PMT2ed p.127)

- a. It is the project manager's responsibility to ensure that the termination process is managed in a controlled and professional manner.
- b. It is the project manager's responsibility to authorize the termination of the project in accordance with agreed procedures and to ensure that the workers are given notice and do not work for the company again.
- c. It is the project manager's responsibility to dispose of the project office assets. These assets should be evenly distributed to the project team in line with the amount of time they have worked on the project.
- d. The termination process should shred and dispose of all the project documents so that the next project can start with empty offices.

**10.7 Answer:** A is correct. Companies should develop procedures for terminating the final phase of the project for the project manager to manage as this is a situation that will happen on most projects. B is incorrect as terminating a worker's contract is related to the present project and is not a method for sacking them. C is incorrect as the sale of project office

assets should go to the project account and not the team members. D is incorrect as certain important documents should be archived in an appropriate manner.

**10.8: Which of the following relate to the Project Closeout?** (Figure 10.2) (PMT2ed p.128)

- a. The closeout report is linked to the project charter, where the project charter sets out what the project is to achieve, and the project closeout confirms the objectives have been achieved.
- b. The closeout of a project sells off all the remaining materials at a discounted rate to the project team.
- c. The closeout report is usually delegated to a team member to compile after the project is completed and the project team has been disbanded.
- d. The closeout report is compiled by the project manager who has to start before the project is complete and the project team disbanded.

**10.8 Answer:** A and D are correct. Figure 10.2 clearly shows the link between the project charter and the project closeout report. D is correct to highlight that it is sensible to start gathering feedback from the project participants before they leave the project. B is incorrect as the sale of remaining materials should go to the project account and not the team members. C is incorrect as although a team member might be involved in the administration of the project closeout report they will be reporting to the project manager and they should be gathering feedback before the project team is disbanded.

**10.9: At the end of the project what should be done with the project related Documents and Closeout Reports?** (PMT2ed p.131)

- a. After the project is signed off the documents are never looked at again. They should be removed from the company and dumped to make space for the next project's documents.
- b. At the end of the project, the files, photographs, all correspondence and particularly the closeout report should not be dumped and lost in the quagmire, but be readily available for inspection.
- c. The project related documents are the database for future estimating and is an auditable item. The project closeout report provides a wealth of information and should not be lost in the archives.
- d. Although the tax office and other authorities require companies to keep their documents, they seldom ask for these documents and, therefore, they can be removed.

**10.9 Answer:** B and C are correct. Not only are certain documents required by the regulating authorities but the experience gained and data should not be lost. A and D are incorrect for the above reason.

**10.10: Which of the following relate to Lessons Learned?** (PMT2ed p.131)

- a. The PMBOK 5ed (2012) defines Lessons Learned as, *the knowledge gained during a project which shows how project events were addressed or should be addressed in the future with the purpose of improving future performance.*
- b. Refers to the lessons taught on a short course in Project Management.
- c. The project managers advise the team members not to report mistakes as this will be held against the project.
- d. Refers to parts of the project that went right and that all the systems worked correctly.

**10.10 Answer:** A and D are correct. A is the PMBOK definition. D is correct as lessons learnt refers to what went right and what went wrong. B is incorrect as this refers to education outside of the project. C is incorrect as the team members should report mistakes otherwise no lessons will be learnt and they run the risk of repeating the same mistakes again.

## **PMT2ed, Chapter 11: Operational Phases (PMT2ed p.132)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **11.1: Which of the following relate to the purpose of the Operational Phases? (PMT2ed p.132)**

- a. The operational phases include the operational start-up phase where the project is implemented into the operational environment.
- b. The operational phases include the project upgrade phase where the facility is improved/enhanced to include the latest technology.
- c. The operational phases include the project disposal phase where the project is decommissioned and the site returned to its original state.
- d. The operational phase includes the payback period, which is one of the business case's criteria for realizing benefits for the company.

**11.1 Answer:** A, B, C and D are correct. All of the above are key phases and success criteria for the operational phases.

### **11.2: Operational Phases vs. Project Lifecycle. Where are the Operational Phase positioned in the Project Lifecycle? (Figure 11.1) (PMT2ed p.133)**

- a. Immediately after the corporate vision phase.
- b. Immediately before the feasibility study phase.
- c. Immediately after the commissioning and handover phase.
- d. Immediately after the execution phase.

**11.2 Answer:** C is correct. The operational phases starts immediately after the project has been commissioned and handed over to the client. A, B and D are incorrect because these phases come before the operational phases.

### **11.3. Who is responsible for initiating the Operational Phases? (PMT2ed p.132)**

- a. The project manager.
- b. The project sponsor.
- c. The CEO.
- d. The operations manager.

**11.3 Answer:** B, C and D are correct. The decision to initiate the operational phases is made by the project sponsor in conjunction with the operations manager and the CEO, together with any other key stakeholders. A is incorrect as the project manager is not usually responsible or involved with initiating the operational phase.

### **11.4: Which of the following are Operational phase implementation strategies? (Table 11.1) (PMT2ed p.134)**

- a. The big bang approach.
- b. The little bang approach.
- c. The phase-in, phase-out approach.
- d. The pilot project approach.

**11.4 Answer:** A, C and D are correct. The marketing department like projects that use the big bang approach so that it can focus potential customer interest on a start date. The 'big bang' implementation strategy starts up the new facility on a key date, which is the fastest implementation strategy. This would typically involve closing down the old existing facility on a Friday afternoon and opening the new facility on the following Monday morning (with a frantic weekend in between).

The phase-in / phase-out implementation strategy progressively starts up parts of the new facility and gets them operating effectively before phasing-out and decommissioning the corresponding parts of the old facility. This way each part of the project is brought into service in a controlled manner until the new project is fully operational. The pilot project implementation strategy is a small scale version of the whole project that is implemented to test the design concept, the operational functionality and the market acceptance. B is incorrect as the little bang approach is not a term used in association with project implementation.

**11.5: Which of the following relate to how a company Realises Benefits from a business case?** (Figure 11.1) (PMT2ed p.113)

- a. By giving the company a return on its investment.
- b. By reaching the break-even point.
- c. By finishing the project on time.
- d. By completing the project within budget.

**11.5 Answer:** A and B are correct. Usually the reason for implementing a business case/project is to realise benefits for the company. Benefits are typically expressed in monetary terms as a return on investment but there might be other benefits that result from the implementation of the project. Reaching the break-even point implies the company has covered its setup costs and will now make a return on its investment. C and D are incorrect as they are project success criteria and do not relate to the company realising benefits.

**11.6: Which of the following could be considered as an Upgrade Project?** (Table 11.3) (PMT2ed p.136)

- a. When the project manager is about to fly to a project progress meeting with the client and is upgraded to a business class seat.
- b. A half-life refit.
- c. A manufacturing expansion project.
- d. A road widening project.

**11.6 Answer:** B, C and D are correct. Many projects have a half-life refit to keep the facility running efficiently, incorporate new technology and to be competitive. Upgrade projects are typically initiated to expand the output of a facility to meet increased demand. Examples of upgrade projects include road upgrades to address increased car ownership and road usage (additional city bypasses, flyovers and extra traffic lanes). A is incorrect as this is not the meaning of an upgrade in the project context.

**11.7: Which of the following relate to the Upgrade Phase?** (PMT2ed p.132)

- a. The designers in the project design phase should consider ways to enable the roads to be upgraded at a later date at minimal cost and disruption.
- b. It is the project managers' responsibility to consider the ease of a project upgrade.
- c. Project managers should predict when an upgrade is required.
- d. The project upgrade should be considered in the original design configuration.

**11.7 Answer:** A and D are correct. The upgrade should be considered at the design stage when the configuration can be adjusted to accommodate future changes. B and C are incorrect. It is not the project manager's responsibility to consider future upgrades, but it should be considered by the client's design team and the project sponsor.

**11.8: Which of the following statements relate to the Project Decommissioning process?** (PMT2ed p.137)

- a. Decommissioning is a general term used to describe a formal process to remove a project or facility from active service.
- b. Decommissioning is also called mothballing.
- c. Decommissioning simply means turning off the machine.
- d. Decommissioning and disposal mean the same thing.

**11.8 Answer:** A and B are correct. Decommissioning removes a project from active service, which sometimes leads to (B) mothballing where a facility is taken out of service and, instead of being disposed of, is put into a form of hibernation (long term storage) with a view to later being recommissioned. C is incorrect as decommissioning is far more involved than simply turning off the machine. For example, it includes informing the stakeholders and running down the inventory. D is incorrect as decommissioning and disposal are very different as outlined in the following question.

**11.9: Which of the following relate to the Disposal Phase?** (PMT2ed p.137)

- a. The method of disposal is decided by the technical experts.
- b. The project site is returned to its original condition.

- c. Many projects are designed to have an operating life of X years. This means the project sponsor can plan for the decommissioning and disposal of the project. In fact, the business case should outline a proposed method to decommission and dispose of the project.
- d. The components of the project are recycled.

**11.9 Answer:** B, C and D are correct. The business case should outline how the site will be returned to its original condition. This particularly applies to mining projects and where toxic products have been used. Recycling refers to the reuse of waste materials, in particular the separating out of raw materials that can be reused. The most common recycled products include aluminium (from cans), copper (from wire), and steel (from cans, furnishings and equipment), polyethylene and glass (from bottles and jars), paperboard cartons, newspapers, magazines, light paper, and corrugated fibreboard boxes. A is incorrect as although the disposal options are presented by the technical experts the decision on which option to select is a senior management responsibility.

**11.10: Use the Internet to find out which of the following relates to the Half-Life Refit of the Battersea Power Station? (Table 11.4) (PMT2ed p.139)**

- a. The power station has been upgraded to include the latest technology.
- b. The power station has been re-fitted as a block of apartments.
- c. The power station has been re-fitted as an office block.
- d. The power station has been redeveloped as a waterfront shopping and entertainment complex.

**11.10 Answer:** B is correct. The shell of the building is a listed building so the half-life refit could only change the inside of the building, which in this case was into apartments. C and D could have been possibilities. A is an unlikely upgrade project as the current trend is to move power stations away from the centre of major cities.



**PMT2ed, Chapter 12: Project Plan (Integration Management)** (PMT2ed p.140)

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**12.1: Which of the following relate to the Project Plan?** (PMT2ed p.140)

- a. The project management plan.
- b. The project execution plan.
- c. The project implementation plan.
- d. The project initiation document (PID).

**12.1 Answer:** All of the above. A plan is a means of achieving an objective. In the project management context a project plan is a means of achieving project objectives. A project plan brings together (integrates) a number of individual plans to form the baseline plan. The project plan is also referred to as the project management plan, the project execution plan, the project implementation plan, the project initiation document (PID) in PRINCE2 or, simply, the plan.

**12.2: Which word is missing? PMBOK 5ed (2012) definition of \_\_\_\_\_. The approved version of a work product that can be changed only through formal change control procedures and is used as a basis for comparison.** (PMT2ed p.140)

- a. A plan.
- b. A project charter.
- c. A scope of work.
- d. A baseline (plan).

**12.2 Answer:** D is correct, Baseline (plan).

**12.3: Which word is missing? APM BoK 5ed definition of the Project Management Plan (PMP). A plan that brings together all the plans for a project. The purpose of the project management plan is to document the outcomes of the planning process and to provide the reference document for managing the project. The project management plan is owned by the \_\_\_\_\_.** (PMT2ed p. 141)

- a. Project sponsor.
- b. Client.
- c. Project manager.
- d. CEO.

**12.3 Answer:** C is correct, the project manager. Not to be confused with the business plan that is owned by the project sponsor.

**12.4: Where is the CPM position in the project flow chart?** (Figure 12.1) (PMT2ed p.141)

- a. Immediately after the earned value analysis.
- b. Immediately after developing the scope of work.
- c. Immediately after the procurement schedule.
- d. Immediately after the risk management analysis.

**12.4 Answer:** B is correct. The CPM analysis requires a list of activities, which are developed from the WBS's work packages. A, C and D are incorrect, as shown in figure 12.1 these functions occur after the CPM analysis. It should be noted, however, that certain projects and certain planners might use a different sequence.

**12.5: As project manager one of your key responsibilities is to produce the Project Plan. Which of the following processes would you use?** (PMT2ed p.140)

- a. Integrate all the individual plans.
- b. Use a process of trade-offs and compromises.
- c. Develop a baseline plan to plan, monitor and control the project.
- d. This is a trick question. The project plan is actually owned by the project sponsor and given to the project manager as the target to be achieved.

**12.5 Answer:** A, B and C are correct. The project plan is an integration of all the individual plans to form one unified plan for the project. When a number of individual plans have

conflicting requirements, trade-offs and compromises this one of the methods used to reach an optimum arrangement. D is incorrect as the project plan is owned by the project manager.

**12.6: What is a trade-off?** (PMT2ed p.146)

- a. The process of writing-off the cost of the work.
- b. The process of achieving an optimum arrangement.
- c. The process of trying to achieve a win-win situation where both parties gain from the trade-off.
- d. Trade-offs always lead to a lose-lose compromise where both parties lose from the trade-off.

**12.6 Answer:** B and C are correct. The trade-off process enables competing plans to consider the best optimum arrangement. A is incorrect as a trade-off does not right off the cost of the work. D is incorrect as trade-offs do not always lead to a lose-lose situation.

**12.7: Is this statement true or false? The project plan and the project control process are separate plans that are developed by separate managers and are not interrelated.** (Figure 12.2) (PMT2ed p.142)

- a. True
- b. False

**12.7 Answer:** B is correct. The two plans are interrelated; therefore a change in one plan will change the other.

**12.8: Why do some project managers use an Iterative Spiral to produce the Project Plan?** (PMT2ed p.142)

- a. The project manager uses a spiral approach to get around problems.
- b. This is a trick question because the iterative spiral is only used to develop the project design.
- c. To develop the project plan progressively.
- d. The iterative spiral is a project methodology that starts with the baseline plan and ends with the project plan.

**12.8 Answer:** C is correct. The project spiral enables each individual plan to be developed separately, incrementally and in conjunction with all the other individual plans. A is incorrect as the spiral is not used to get around problems. B is incorrect as the spiral is not restricted to the design phase. D is incorrect as the spiral develops individual plans and finishes with a baseline plan.

**12.9: Which of the following are individual plans?** (PMT2ed p.144)

- a. Time plan.
- b. Cost plan or budget.
- c. Quality control plan.
- d. Project plan.

**12.9 Answer:** A, B and C are correct. D is incorrect as the project plan is an integration of all the individual project plans.

**12.10: Which of the following Trade-Offs occur at different times along the project lifecycle?** (Figure 12.4) (PMT2ed p.148)

- a. In the business case phase there is a trade-off between the different business cases all vying for selection as the best option to meet the corporate requirements.
- b. In the feasibility phase developing the scope definition is a trade-off between competing projects and their constraints.
- c. In the execution phase there is a trade-off between the project configuration and the existing facilities.
- d. In the commissioning phase there is a trade-off between the different model testing methods.

**12.10 Answer:** A and B are correct. Each phase narrows down the selection of the best business case and the best project. C is incorrect as configuration issues should have been identified and addressed in the design phase. D is incorrect as the commissioning phase

tests the project and does not test models of the project, which should have been tested in the design phase.

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**PMT2ed, Chapter 13: Project Scope Management (PMT2ed p.150)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**13.1: Which of the following relate to the definition of Scope Management? (PMT2ed p.150)**

- a. Scope management helps to prevent a misleading scope definition.
- b. Scope management identifies the amount of rework.
- c. The business case is an output from the scope definition.
- d. Scope definition includes all the work required to achieve the project objectives.

**13.1 Answer:** A and D are correct. The purpose of scope definition is to identify all the work to complete the project and, just as importantly, the work that is not involved in the project. B is incorrect as scope definition is not related to rework. C is incorrect as the business case is an input not an output for the business case.

**13.2: Where is Scope Management positioned in the project flow chart? (Table 15.1) (PMT2ed p.175)**

- a. Immediately after the project charter.
- b. Immediately after the CPM analysis.
- c. Immediately after the project cash flow statement.
- d. Immediately after the risk management analysis.

**13.2 Answer:** A is correct. Scope management is positioned immediately after the project charter has been produced and immediately before the CPM, project cash flow statement and risk management analysis. B, C and D are therefore incorrect.

**13.3: Which of the following are related to Scope Definition (Table 13.2) (PMT2ed p.154)**

- a. Scope definition is the structured process of identifying and describing the project's deliverables (outputs, outcomes and benefits) and all the items of work necessary to make the deliverables.
- b. Scope definition is finalised in the project definition phase.
- c. The project charter and scope definition are the same document.
- d. The CPM is an input document into the scope definition process.

**13.3 Answer:** A and B are correct. The scope definition uses a structured process to define all the project deliverables and scope of work. The scope definition will be developed progressively through the phases but needs to be finalised in the scope definition phase before the execution phase. Any changes after this will then be considered as scope changes. C is incorrect as the project charter not only includes the purpose of the project but how to make the project as well. D is incorrect as the detailed CPM analysis is carried out immediately after the scope of work is quantified.

**13.4: Which of the following relate to the WBS Dictionary? (Table 13.1) (PMT2ed p.154)**

- a. The WBS dictionary contains all the information the project manager needs to complete the project.
- b. By using a breakdown structure the level of detail can be adjusted to meet the required level of information.
- c. The WBS dictionary ensures that all the project terminology spelling is correct.
- d. The WBS dictionary enables the scope of the project to creep into the time available.

**13.4 Answer:** A and B are correct. The WBS dictionary lists all the items of work. C and D are incorrect.

**13.5: You are the project manager of a project and one of the functional managers wants to make a major scope change during the execution phase of the project. What should be your action? (PMT2ed p.156)**

- a. Prepare an impact statement of the proposed change and submit it to the project sponsor for approval.
- b. Refuse to make the change.
- c. Advise the sponsor about the disruption the change will have on the project schedule.

d. Ignore the change request.

**13.5 Answer:** A and C are the correct answer. If the functional manager wishes to make a scope change then the project manager needs to compile an impact statement and present it to the project sponsor for approval. The impact statement should include any impact on the build-method, execution strategy and project schedule. B is incorrect as the project manager does not have the authority to approve or reject scope changes. D is incorrect as the project manager does not have the authority to ignore scope change requests.

**13.6: Which of the following relate to how the project manager controls Scope Changes?**

- a. The project manager can make any scope changes deemed to be required to achieve the project's critical success factors.
- b. The project manager encourages scope creep to improve the project's facilities.
- c. The project manager produces an impact statement to analyse the impact the scope change will have on the project's performance.
- d. The project manager considers the impact any changes will have on the project's configuration.

**13.6 Answer:** C and D are correct. The first part of managing scope changes is to develop an impact statement that considers the impact of any changes on the performance and configuration of the project and any impact on the key objectives. A is incorrect as changes to the scope of work can only be approved by the nominated managers and, although this usually includes the project manager, it should also include a number of other key managers. D is incorrect as scope creep refers to additional work that does not add any additional value to the project.

**13.7: You are responsible for managing a project that deals with laying out a freeway connecting two major port cities. Progress in the past has been smooth but lately in the past few months you have observed a schedule and budget overrun. You decide to hold a meeting with your team members. On discussion you realize team members went ahead and made changes at the behest of the client requests on site. You are sure the changes were not a part of the project scope statement. This is an example of which of the following? (PMT2ed p.159)**

- A. Scope creep.
- B. Gold plating.
- C. Integrated change control.
- D. Fast tracking.

**13.7 Answer:** A and B are correct. A is an example of scope creep which is unintentional, uncontrolled incremental changes in the project's scope of work without any real benefit for the business case. B is an example of gold plating, which are changes in the scope of work. The gold plating is generally done intentionally or knowingly for some strategic purpose and adds functionality or technical perfectionism beyond the original requirements. C is incorrect as integrated change control deals with formally approving or rejecting changes before they are implemented. D is incorrect as fast tracking is a schedule compression technique.

**13.8: Which of the following relate to a change management Impact Statement? (PMT2ed p.158)**

- a. The impact statement is written to make a good impression on the client.
- b. The impact statement can be compiled by any team member.
- c. The impact statement can only be compiled by nominated team members.
- d. The impact statement outlines the consequence of making a certain change.

**13.8 Answer:** C and D are correct. The impact statement is compiled by nominated experts to consider the impact of any changes to the original scope of work. A is incorrect as the impact statement is not written to make an impression on the client. B is incorrect as the impact statement can only be compiled by a nominated person.

**13.9: As project manager you have been asked to Verify a project. Which of the following would you perform? (PMT2ed p.160)**

- a. Confirm the machine has been installed in the right position.

- b. Confirm the machine has been installed as per the manufacturer's requirements.
- c. Confirm the machine has been installed as per the regulatory requirements.
- d. Confirm the machine meets the client's requirements.

**13.9 Answer:** A, B and C are correct. Verification, not to be confused with validation, ensures that the project is being made to the right specifications and standards. D is incorrect as this relates to the client's requirements.

**13.10: As project sponsor you have been asked to Validate a project. Which of the following would you perform? (PMT2ed p.160)**

- a. Confirm the machine has been installed in the right position.
- b. Confirm the machine has been installed as per the manufacturer's requirements.
- c. Confirm that a product, service, or system meets the needs of the customer and other identified stakeholders.
- d. Ensure that the right product is being built.

**13.7 Answer:** C and D are correct. Validation, not to be confused with verification, ensures that the project is addressing the client's needs. Therefore, A and B are incorrect as these relate to the installation of the project.

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**PMT2ed, Chapter 14: Work Breakdown Structure (WBS) (PMT2ed p.162)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**14.1: Which of the following outline the purpose of a Work Breakdown Structure (WBS)? (PMT2ed p.162)**

- a. To subdivide the project work into smaller and more manageable items of work.
- b. To define the complete scope of work.
- c. To define the work that is not included in the project.
- d. To define the logical sequence between the work packages and to identify dependencies.

**14.1 Answer:** A, B and C are correct. The WBS is a structured methodology to quantify the full scope of work and, by implication, what is not included. D is incorrect as the WBS does not show the logical sequence of when work should be performed.

**14.2: Which of the following relate to methods of WBS Subdivision? (PMT2ed p.168)**

- a. By the location of the work.
- b. By the discipline involved in making the project.
- c. By the logical relationship between the work packages.
- d. By the transport to move the components of the project.

**14.2 Answer:** A, B and D are correct. These are all popular ways of subdividing the scope of work. C is incorrect as a logical relationship between work packages is a technique used for CPM.

**14.3: Which of the following relate to the PBS (Product Breakdown Structure)? (PMT2ed p.164)**

- a. The PBS is a method of breaking down the project into deliverables.
- b. The PBS is a method used to confirm the configuration of the deliverables work together.
- c. The PBS / WBS interface is used to identify the work to make the deliverables.
- d. The PBS helps identify the deliverables' dependencies.

**14.3 Answer:** A, B and C are correct. The PBS subdivides the project into deliverables that can then be further subdivided into work packages. D is incorrect as there is no logical time relationship between the deliverables – these will be developed in the network diagram.

**14.4: Which of the following relate to the Configuration of the project? (PMT2ed p.164)**

- a. To check how all the deliverables operate effectively together.
- b. To check how the new components interface with existing components of the facility.
- c. To check the shape of the project to confirm it looks attractive from different angles.
- d. To identify configuration dependencies.

**14.4 Answer:** A and B are correct. The configuration management process checks the deliverables work together and with existing facilities. C and D are incorrect as configuration is not concerned with aesthetics or dependencies.

**14.5: Which of the following relate to a project's Deliverables? (PMT2ed p.164)**

- a. Responsibility can be assigned to each deliverable.
- b. Checking the requirements of the deliverables helps to reduce scope creep.
- c. A deliverable is any unique and verifiable product, result, or capability to perform a service that must be produced to complete a process, phase, or project.
- d. The breakdown structure enables the deliverables to be delivered one after the other.

**14.5 Answer:** A, B and C are correct. Once the deliverables have been identified responsibility can be assigned and scope creep can be controlled. D is incorrect as breakdown structures are scope focused and not time and logic focused. The deliverables schedule is an output from the CPM analysis.

**14.6: Which of the following relate to the Work Packages? (PMT2ed p.167)**

- a. Ownership and responsibility can be assigned to the work package.
- b. Estimating can be performed at the work package level.

- c. Dependencies between work packages are used for the CPM analysis.
- d. Budgets can be developed at the work package level.

**14.6 Answer:** A, B and D are correct. Once the work packages have been determined ownership and responsibility can be assigned together with estimating and budgeting at that level. C is incorrect as the work packages focus on work content not dependencies.

**14.7: Which of the following relate to Numbering the WBS work packages?** (PMT2ed p.170)

- a. The numbering system uniquely identifies all the work packages.
- b. All work packages should have a number even if it is the project number.
- c. If the work packages are numbered then the purchase orders can be numerically linked to the associated work package.
- d. If the work packages are uniquely numbered then accounts can be numerically linked to the associated work package.

**14.7 Answer:** A, C and D correct. The numbering system enables all the work packages to be uniquely identified, which means other parameters can be linked such as purchase orders and accounts. B is incorrect as the different work packages should have a different number to each other so that they can be uniquely identified.

**14.8: Which of the following relate to a WBS Template?** (Figure 14.8) (PMT2ed p.171)

- a. A template is a useful format when a number of projects are exactly the same.
- b. Using a 'similar template' enables projects to follow previously successful formats.
- c. A structured template can be used as a prompt or checklist.
- d. A template, [stencil](#) or [pattern](#) is an image of the project that can be overlaid to produce an exact outline of the project.

**14.8 Answer:** B and C are correct. Using a proven WBS template is a sensible starting point as it is always easier to adjust a proven format rather than start from a blank sheet of paper. A is incorrect as projects, by definition, cannot be exactly the same. D is incorrect as a WBS template is not an image of the project.

**14.9: Which of the following relate to how different breakdown structures interface with each other?** (Figure 14.9) (PMT2ed p.172)

- a. Interfacing breakdown structures are typically shown as links between the PBS, WBS, CBS and OBS.
- b. The graphic structure in figure 14.9 can be used on all sizes of projects.
- c. The different breakdown structures confirm the ethics of the project.
- d. A spreadsheet is a more practical format to show the integration of a number of breakdown structures.

**14.9 Answer:** A and D are correct. The PBS, WBS, CBS and OBS are the most common types of breakdown structures. Because of the amount of space the diagram (figure 14.9) requires the spreadsheet is a more practical format for integrating a number of breakdown structures. B is incorrect as there would be too many links to draw for a large project. C is incorrect as the WBS is not related to ethics.

**14.10: Which of the following relate to Tabular Reports and Spreadsheets?** (Figure 14.10) (PMT2ed p.173)

- a. Spreadsheets are a popular type of software used to present project information in a tabular format.
- b. The spreadsheet format helps to build up a complete list of work packages.
- c. A WBS spreadsheet can only be used to calculate numerical data.
- d. A WBS spreadsheet can be used to identify dependencies.

**14.10 Answer:** A and B are correct. A spreadsheet with the WBS as the anchor column can be used to present a wide range of project parameters that includes non numerical data. C is incorrect as a spreadsheet can present non numerical data. D is technically incorrect as dependencies are usually presented at the activity level for CPM analysis.



**PMT2ed, Chapter 15: Project Time Management (PMT2ed p.174)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**15.1: Where is the CPM position in the project flow chart? (Figure 15.1)(PMT2ed p.175)**

- a. Immediately after the business case.
- b. Immediately after the project charter.
- c. Immediately after the WBS.
- d. Immediately after the Earned value.

**15.1 Answer:** C is correct.

**15.2: Which of the following relate to the purpose of Time Management? (PMT2ed p.174)**

- a. To finish the project quicker.
- b. To start work at the right time.
- c. To include all the processes and activities that enable the project manager to complete the project on time.
- d. To check the shape of the project to confirm it looks aesthetically attractive from different angles.

**15.2 Answer:** B and C are correct. Time management sets out a start and finish date for all the activities and considers all the other factors that might impact on the project. A is incorrect as finishing the project quicker is a project sponsor's decision based on the business case and the market. D is incorrect as it has nothing to do with time management.

**15.3: When estimating an activity's duration the project manager should: (PMT2ed p.180)**

- a. Use random guessing to estimate durations for all activities as there will be changes in the scope of work.
- b. Involve the people who will be performing the work to estimate the time they need to complete the activities.
- c. Estimate the duration it will take to complete the activity and exclude contingencies.
- d. None of the above.

**15.3 Answer:** B and C are correct. If practical, it is sensible to include the people who will perform the work in the time estimating. An agreed policy should be established concerning contingencies. Are contingencies included in the estimate or under risk management? A is incorrect as activity estimating should be based on both historical data and reliable parameters.

**15.4: Who developed the Barchart? (PMT2ed p.174)**

- a. Henry Gantt.
- b. Abraham Maslow.
- c. Mr Pert.
- d. Henri Fayol.

**15.4 Answer:** A is correct, Henry Gantt.

**15.5: Which of the following relate to developing a list of Activities? (PMT2ed p.178)**

- a. The list of activities should adequately define the project's scope of work to enable the project to achieve its time objectives as set out in the project charter.
- b. Identifying the activities' dependencies will help to develop a list of activities.
- c. The list of activities is developed before the WBS.
- d. A work package is at a greater level of detail compared to an activity, which is why the activities are not used for time planning.

**15.5 Answer:** A and B are correct. The list of activities should fully define the project's full scope of work. One of the methods for developing the list of activities is to identify the activities' dependencies. C is incorrect as activities are usually developed from the work

packages. D is incorrect as the activities are at a greater level of accuracy compared to the WBS.

**15.6: Which of the following relate to project Scheduling?** (PMT2ed p.174)

- a. Project scheduling relates to the configuration of the project's deliverables.
- b. Scheduling establishes a timeline for the project.
- c. The schedule is the international term that relates to the thickness of a pipe.
- d. The schedule is the chronological order for which activities are intended to be carried out.

**15.6 Answer:** B and D are correct. A project schedule outlines the sequence of work and when it will be carried out. A is incorrect as project scheduling is not related to the configuration of the deliverables. C is incorrect as although schedule does relate to the thickness of a pipe it is not used in a project planning context.

**15.7: Which of the following relate to an Activity's Attributes?** (PMT2ed p.176)

- a. All activities have a number.
- b. All activities have a description.
- c. All activities are logically related to other activities.
- d. The activities are used to check the shape of the project to confirm it looks aesthetically attractive from different angles.

**15.7 Answer:** A, B and C are correct. All activities have a number, a description and are logically related to other activities. D is incorrect as it is not an activity's attribute.

**15.8: Which of the following relate to a CPM Calendar?** (PMT2ed p.179)

- a. A calendar outlines the days on which work can be scheduled.
- b. A calendar outlines the best days to go shopping to catch the best bargains.
- c. The CPM calendar is also called a work pattern.
- d. The calendar can include holidays and other days when the work force is not available.

**15.8 Answer:** A, C and D are correct. A calendar or work pattern outlines when work can be carried out and, by implication, when work cannot be carried out. B is incorrect as it is not related to managing projects.

**15.9: If an activity's level of effort is 300 man-days how long will the activity take if there are 5 men working on the activity?** (Table 15.5) (PMT2ed p.180)

- a. 40 days.
- b. 50 days.
- c. 60 days.
- d. 80 days.

**15.9 Answer:** C is correct, 60 days.

**15.10: To produce a unified Project Plan the project manager will probably have to trade-off some of the parameters. If the project manager has to reduce the project's duration, which of the following trade-offs apply?**

- a. Reduce the scope of work.
- b. Reduce the budget.
- c. Instruct the project resources to work overtime.
- d. Instruct the project work force to work faster.

**15.10 Answer:** A and C are correct. Reducing the scope of work and/or increasing the project resources should reduce the project's duration. B is incorrect as reducing the budget could increase the duration. D is incorrect as instructing the work force to work faster might antagonise the work force.

**PMT2ed, Chapter 16: Critical Path Method (CPM) (PMT2ed p.184)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**16.1: The project manager has been asked by a team member to explain the purpose of the Critical Path Method (CPM). Which of the following apply? (PMT2ed p.184)**

- a. The critical path is the route from the site office to where the work is being carried out.
- b. The critical path determines the start and finish dates for all the activities.
- c. The critical path determines the sequence of the activities.
- d. The critical path identifies the activities on the critical path, which if delayed will delay the whole project.

**16.1 Answer:** B, C and D are correct. The CPM determines the start and finish dates for all the activities, the sequence of work and the list of critical activities. CPM is a method used to estimate the minimum project duration and determine the amount of scheduling flexibility on the logical network paths within the schedule model. A is incorrect as the critical path is not a walk way.

**16.2: Who originally developed the CPM? (PMT2ed p.185)**

- A. Remington Rand Univac.
- b. Henry Gantt.
- c. Mr Pert.
- d. Mr A Maslow.

**16.2 Answer:** A is correct, Remington Rand Univac.

**16.3: Where is the CPM position in the project flow chart? (PMT2ed p.175)**

- a. Immediately after the business case.
- b. Immediately before the risk management assessment.
- c. Immediately before monitoring and control.
- d. Immediately after the scope of work and WBS.

**16.3 Answer:** D is correct. The WBS work packages can be developed into a list of activities along the timeline together with their logical relationships and durations. These are the prerequisites for the CPM analysis.

**16.4: Which of the following relate to the Network Diagram? (PMT2ed p.186)**

- a. The network diagram forms the logic framework of the CPM analysis.
- b. The network diagram determines the risks and causes of issues as they occur.
- c. The network diagram is used to show inter-dependencies of all activities.
- d. The network diagram helps to establish the project organization structure.

**16.4 Answer:** A and C are correct. The network diagram forms the structure of the CPM analysis, which includes the logic between activities. B is incorrect as the network diagram does not determine risks other than highlighting the critical path. D is incorrect as the network diagram is not related to the organization structure.

**16.5: Which of the following relate to Activity Logic? (PMT2ed p.187)**

- a. Activities can be in parallel – one after the other.
- b. Activities can be in series – one after the other.
- c. Activity logic relates to the content of the activity.
- d. Activity logic prevents work happening in the wrong sequence.

**16.5 Answer:** B and D are correct. Activity logic usually starts in series and/or in parallel. Setting out the activities' logic in a network diagram will highlight the best sequence of work. A is incorrect as activities in parallel are carried out at the same time. C is incorrect as activity logic relates to the sequence of activities and not its content.

**16.6: Which of the following are different types of Activity Logic? (PMT2ed p.187)**

- a. Finish-to-start (FS) is a logical relationship where a successor activity cannot start until a predecessor activity has finished.

b. Start-to-start (SS)

c. Activity lead is the amount of time whereby a successor activity can be advanced with respect to a predecessor activity.

d. Activity lag is the amount of time whereby a successor activity must be delayed with respect to a predecessor activity.

**16.6 Answer:** A and B are correct. To this list could have been added finish-to-finish (FF) a logical relationship in which a successor activity cannot finish until a predecessor activity has finished, and start-to-finish (SF). C and D are incorrect as they do not give any information on the relationship between activities.

**16.7: In CPM, what is a Forward Pass?** (PMT2ed p.190)

a. When a rugby player passes the ball in front of another player.

b. A technique for calculating the early start dates for all the activities.

c. Opposite to a backward pass, which is used to calculate the late start and late finish dates by working backward through the schedule model from the project end date.

d. A technique for calculating the early finish dates for all the activities.

**16.7 Answer:** B, C and D are correct. The forward pass calculates the earliest possible point in time when the uncompleted portions of a schedule activity can start and finish based on the schedule network logic, the data date, and any schedule constraints. A is incorrect as this type of forward pass does not relate to the CPM.

**16.8: Your project team has created a network diagram and performed a forward pass. The project team are now going to perform a backward pass. Which of the following relate to a backward pass?** (PMT2ed p.190)

a. A backward pass is when a rugby player passes the ball behind to another player.

b. A backward pass works back from the early finish date or planned completion date to calculate the latest start dates for all the activities.

c. A backward pass works back from the early finish date or planned completion date to calculate the latest finish dates for all the activities. In the Critical Path Method, the latest possible point in time when the uncompleted portions of a schedule activity can finish is based on the schedule network logic, the project completion date, and any schedule constraints.

d. A backward pass is when the project's progress has not progressed since the last measurement of performance.

**16.8 Answer:** B and C are correct. The backward pass calculates the latest start and finish dates for all the activities. Any delay to these dates will delay the completion of the project. This is part of the calculation to identify the critical path. A is incorrect as this type of backward pass does not relate to the CPM. D is incorrect as the backward pass does not refer to a project's progress.

**16.9: Which of the following relate to the characteristics of activity Float?** (PMT2ed p.195)

a. Activity float is the difference between early start and start-to-start.

b. Activity float is the difference between early start and early finish.

c. Activity float is the difference between early start and late finish.

d. Float is a measure of the time an activity can be delayed before it has an impact on the critical path.

**16.9 Answer:** B and D are correct. Activity float is a measure between the ES and EF, or EF and LF. This calculation gives the amount of flexibility before any delay will impact on the critical path. A is incorrect as it is a meaningless statement. C is incorrect as activity float is the difference between ES and LS, or EF and LF.

**16.10: An activity has an Early Start (ES) of 5 days and Late Start (LS) of 16 days. What is the activity's float?**

A. 11 days

B. 21 days

C. 5 days

D. 16 days

**16.10 Answer:** A is the correct answer. Activity float = Late Start - Early Start = 16-5 = 11 days.

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## **PMT2ed, Chapter 17: Gantt Charts (PMT2ed p.198)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **17.1: What is a Gantt Chart? (PMT2ed p.198)**

- a. A vertical barchart that shows the length of each activity.
- b. A horizontal barchart that shows the duration of each activity along a timeline.
- c. A horizontal barchart that shows the start and finish of each activity.
- d. A horizontal barchart where activity information is listed on the vertical axis and the duration is shown on the horizontal axis.

**17.1 Answer:** B, C and D are correct. The Gantt chart is a horizontal barchart that sets out the start and finish of all the activities along a horizontal timeline. A is incorrect as the barchart is always shown horizontally.

### **17.2: The Gantt Chart is named after? (PMT2ed p.198)**

- a. The gannet sea bird.
- b. Henry Ford.
- c. Henry Gantt.
- d. A gauntlet.

**17.2 Answer:** C is correct.

### **17.3: Where is the detailed Gantt Chart position in the Project Flow Chart? (PMT2ed p.198)**

- a. Immediately after the CPM.
- b. Immediately after the project charter.
- c. Immediately after the procurement schedule.
- d. Immediately after the monitoring and control function.

**17.3 Answer:** A is correct. Although outline Gantt charts might be used at any time in the business case, the detailed Gantt chart can only be developed after the CPM has calculated the start and finish dates for all the activities.

### **17.4: Which of the following relate to activity Float or Slack? (Figure 17.4) (PMT2ed p.201)**

- a. On shipbuilding projects activity float relates to the activities that enable the ship to float on the surface.
- b. Activity float is usually shown in the Gantt chart before the start of the activity.
- c. Activity float is a measure of how many time periods an activity can be delayed without the activity becoming a critical activity.
- d. Activity float is usually shown in the Gantt chart after the early finish of the activity.

**17.4 Answer:** C and D are correct. Activity float is a measure of the flexibility an activity has before impacting on the critical path. The float is usually shown after the early finish as any delay to the activity will visually move it into the float available. A is incorrect as activity float is not related to a ship's buoyancy. B is incorrect as activity float is usually shown after the early finish.

### **17.5: Which of the following relate to the Logic Gantt chart? (PMT2ed p.198)**

- a. The logic Gantt chart is so called because it logically follows the WBS.
- b. The logic barchart shows the relationship between the activities.
- c. The logic barchart shows the logical links between the activities.
- d. The logic Gantt chart is drawn before the network diagram.

**17.5 Answer:** B and C are correct. With the aid of computer planning software the logic Gantt chart is usually one of the display options to show the relationship and dependency between activities. A is incorrect as the logic Gantt chart refers to the logic between the activities not the relationship it has with other techniques such as the WBS. D is incorrect as the logic Gantt chart and the network diagram are both based on the same information and, therefore, can be drawn at the same time.

**17.6: Why would the project manager use the Select and Sort functions? (PMT2ed p.203)**

- a. The select function helps to filter out activities that the project manager does not wish to consider at the time.
- b. The select function selects the activities that will make the best return on investment.
- c. The sort function orders activities as per the project's requirements, for example, ordering by activity float will sort by an activity's proximity to the critical path.
- d. The select function helps to build an effective project team.

**17.6 Answer:** A and C are correct. For projects with hundreds of activities the select and sort options give the project manager the power to select only the activities that need to be considered and present them in the most suitable order. B is incorrect as it is the project as a whole that offers a return on investment not the individual activities. D is incorrect as it is the wrong use of the word 'select'.

**17.7: Which of the following relate to a Hammock activity? (Figure 17.8) (PMT2ed p.204)**

- a. On a construction project a hammock activity is required by health and safety to install netting under the construction area to protect the workers below.
- b. Hammock activities are similar to activities in series performed one after the other.
- c. A hammock activity is a summary activity with a number of sub-activities linked to the early start and late finish of the hammock
- d. A hammock activity enables a number of activities to be grouped and rolled up to be reported as one activity. This helps to remove the number of activities on summary reports.

**17.7 Answer:** C and D are correct. A hammock activity groups a number of interlinked activities and shows them extending from the early start of the first activity to the early finish of the last activity. This technique is often used in summary reports for senior management. A is incorrect as a hammock activity does not refer to the fitting of netting to protect workers below. B is incorrect as a hammock activity is a term for a grouping of tasks that "hang" between two end dates.

**17.8: Which of the following relate to Milestones? (Figure 17.9) (PMT2ed p.205)**

- a. It is normal practice to place a milestone at the nearest motorway junction to the project to show the distance to the site office.
- b. Milestone, also called keydate, is an imposed date usually in the form of a "start no earlier than" and "finish no later than" date.
- c. A milestone could be the start, finish or any important key date within a project.
- d. Milestones or events are shown as a point in time (zero duration) on the Gantt chart.

**17.8 Answer:** B, C and D are correct. A milestone Gantt chart is a useful technique to identify important dates for planning and control purposes. A is incorrect as an activity milestone has nothing to do with road marking milestones.

**17.9: Which of the following relate to a Rolling Horizon? (PMT2ed p.206)**

- a. On a construction site, as the building increases in height, the visible horizon rolls further into the distance. This might be influenced by refraction of the sun's rays as it passes through the atmosphere.
- b. Horizon refers to the time period or time horizon where the project manager is able to plan in detail and with a high level of confidence that there will not be any major changes.
- c. A short term horizon (a week or two) enables the project manager to focus on managing the activities that are working or will be working.
- d. The rolling horizon is shown in the network diagram format.

**17.9 Answer:** B and C are correct. The rolling horizon technique enables the project manager to focus on the part of the project that will be performed in the short term rather than showing all the project's activities. This is particularly useful on large capital projects. A is incorrect as the rolling horizon refers to a time horizon not a visual horizon. D is incorrect as the rolling horizon is shown in the Gantt chart format.

**17.10: Which of the following relate to a Revised Gantt chart? (PMT2ed p.207)**

- a. When the project manager picks up a spelling mistake the Gantt chart is revised to include the correction.

b. After the official reporting period (usually weekly) the Gantt chart is revised to show the latest progress.

c. The Revised Gantt chart shows the progress alongside the original planning.

d. The Revised Gantt chart is subdivided into two sections so that it can be reported separately.

**17.10 Answer:** B and C are correct. The revised Gantt chart shows the latest position of all the project's activities, usually with the latest progress drawn alongside or over the original plan. A is incorrect as revising the Gantt chart refers to updating the project's performance not correcting typo errors. D is incorrect as the whole purpose of the Revised Gantt chart is to combine planning and progress on one document.

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## **PMT2ed, Chapter 18: Project Procurement Management (PMT2ed p.210)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **18.1: Which of the following relate to the purpose of Project Procurement? (PMT2ed p.210)**

- a. The procurement process secures the internal labour to make the project.
- b. The processes necessary to purchase or acquire products, services, or results needed from outside the project team.
- c. Includes the processes and activities that enable the project manager to acquire the goods and services required to perform the project's scope of work.
- d. Giving presents to your staff to keep them motivated.

**18.1 Answer:** B and C are correct. Project procurement is the process required to acquire the goods and services to make the project. A is incorrect as organizing internal labour falls under internal resource management. D is incorrect as motivating staff is a leadership function.

### **18.2: Where is the Procurement Schedule developed in the Project Flow Chart? (PMT2ed p.218)**

- a. After the CPM analysis and Gantt chart have been developed.
- b. After the cash flow statement.
- c. After the organization structure has been established.
- d. After the resource histogram has been calculated.

**18.2 Answer:** A is correct. However, this answer needs to be clarified because some project managers might use a different sequence based on the needs of the project and their experience. The text has assumed that the procurement constraints, particularly long lead items, are less flexible than the human resource constraints and the project cash flow constraints, so these will be considered after developing the procurement schedule. B is incorrect as explained above. C is incorrect as the procurement schedule and organization structure are unrelated. D is incorrect as explained above.

### **18.3: Which of the following relate to the project manager's Execution Strategy? (PMT2ed p.212)**

- a. A management decision that compares the costs and benefits of manufacturing a part or component of the project against the costs and benefits of purchasing it.
- b. The act of choosing between manufacturing a product in-house using company resources or purchasing it from an external supplier. In a make-or-buy decision, the four most important factors to consider are resources, cost, availability and quality of the component.
- c. The buy decision depends on the funds available to make the project.
- d. The execution strategy outlines how the project will be implemented into its operating environment.

**18.3 Answer:** A and B are correct. The execution strategy focuses on who will make the different parts of the project - this is usually expressed as the 'make or buy' decision. C is incorrect as project funds will need to be available whether the components are made in-house or outsourced. D is incorrect as the execution strategy focuses on who will make the project and not how the project will be implemented into its operating environment.

### **18.4: Which of the following support the 'Make' in-house decision? (PMT2ed p.212)**

- a. Make the project or components in-house when the in-house resources are available.
- b. Make the project or components in-house to by-pass the quality control checks and so speed up the delivery.
- c. Make the components in-house because it is easier to control the quality as opposed to controlling the quality of work outsourced to an overseas company.
- d. Make the project or components in-house when the project is using a matrix organization structure.

**18.4 Answer:** A and C are correct. It is usual to use the company's in-house resources, expertise and machinery when they are available and underutilized. With a known in-house workforce the labour costs are usually more cost effective when compared to using outside

contractors. Similarly, it is easier to manage quality control in-house compared to outsourcing the work to an overseas company and relying on the contractor's own quality control department. B is incorrect as the quality control checks are required wherever the components are made. D is incorrect as the 'make or buy' decision is not related to the type of organization structure.

**18.5: How does Just-In-Time (JIT) relate to Project Procurement? (PMT2ed p.217)**

- a. In the project context, JIT includes the receiving requirements, quality inspection, warehousing and internal delivery time.
- b. JIT can be shown on a Gantt chart to clearly show the 'order by date' and the receiving date.
- c. JIT inventory control management can only be used in car production lines.
- d. JIT is a cleaning fluid that is used to clean the site offices.

**18.5 Answer:** A and B are correct. Although JIT is usually associated with production inventory control, it can be used in the project context to include the receiving process, quality control and inventory control. The JIT schedule can be shown on the Gantt chart the planner is using to monitor and control the project. C is incorrect as JIT can be used as inventory control management for projects as well as production facilities. D is incorrect as JIT is not a cleaning fluid.

**18.6: What options does the project manager have to control the Late Delivery of a component or material to ensure that the end date of the project is achieved? (PMT2ed p.219)**

- a. Delay the ES by using the activity's float (assuming the activity is not on the critical path).
- b. Add additional resources to reduce the duration of the activity to accommodate the procurement delay.
- c. Accept the delay and extend the end date of the project.
- d. Speed up delivery by using a faster form of transport (for example, air freight instead of sea freight).

**18.6 Answer:** A, B and D are correct. Late deliveries are typically addressed by using the activity's float, reducing the activity's duration or using a faster mode of shipping. C is correct as the question asks for ways to prevent delaying the project.

**18.7: A friend asks what is the difference between a Project Co-ordinator and a Project Expeditor. Which of the following points are correct?**

- a. There is really no difference between the two positions.
- b. The Project Expediter monitors the project's supply chain against the procurement schedule on behalf of the project manager.
- c. The Project Co-ordinator co-ordinates the project execution against the project plan on behalf of the project manager.
- d. Project expeditors are only found in matrix organization structures.

**18.7 Answer:** B and C are correct. The project expeditor and project co-ordinator are different roles within the project organization structure or project team. The project expeditor focuses on the supply chain and the project co-ordinator focuses on the planning and control functions. A is incorrect as, explained above, the two positions are different. D is incorrect as project expeditors are found in all types of project organization structures.

**18.8: What functions should a Procurement Expeditor carry out? (PMT2ed p.220)**

- a. Confirm the contractor has received the purchase order and instructions.
- b. Confirm the supplier has issued a job number.
- c. Confirm the job has been planned into the supplier's production system.
- d. Confirm the supplier has ordered the materials and components required.

**18.8 Answer:** A, B, C and D are correct. The expeditor needs to monitor every link in the supply chain to ensure the components are made to the right quality and delivered on time. The expediting process follows up on the purchase orders to ensure and encourage the suppliers to meet their contractual requirements (particularly quality and delivery).

**18.9: Which of the following might be considered as Long Lead items? (PMT2ed p.217)**

- a. Materials that can be delivered within a week.
- b. Components that are available in the local supplier's warehouse.
- c. Components that are supplied from overseas, and that the shipping, customs and delivery will take six weeks.
- d. Components that need to be designed to measure and manufactured with a time estimate of two months.

**18.9 Answer:** C and D are correct. The answer needs to be qualified because long lead times are relative to the duration of the project. Typically one week delivery would be normal, whereas more than a month would be considered a long lead item. A and B are incorrect as their delivery time is less than one week.

**18.10: Which of the following relate to Procurement Acceptance Criteria? (PMT2ed p.211)**

- a. Confirm the delivery note with the purchase order.
- b. A set of conditions that must be met before deliverables are accepted.
- c. The acceptance speech given by the client at the project handover.
- d. Acceptance criteria can only be used with a matrix organization structure.

**18.10 Answer:** A and B are correct. The acceptance criteria ensures that the product received meets the required condition (specification, documentation and packaging). C is incorrect as an acceptance speech does not relate to the procurement acceptance criteria. D is incorrect as the acceptance criteria and the organization structure are not related.

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## **PMT2ed, Chapter 19: Project Resource Management (PMT2ed p.222)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **19.1: Which of the following relate to Project Resource Management? (PMT2ed p.222)**

- a. The project manager's challenge is to use resource management techniques to match the resource supply with the project resource demand and to enable the project to meet its schedule objectives.
- b. Project resource management ensures that the procured items are delivered on time.
- c. Project resource management can only be applied through a matrix organization structure.
- d. The resource histogram is a special form of bar chart used to describe the central tendency, dispersion, and shape of a statistical distribution.

**19.1 Answer:** A and D are correct. Project resource management uses the resources available (in-house and contactors) to perform the scope of work as per the project plan. This is often presented as a resource histogram to show the resource loading graphically. B is incorrect as resource management is not related to procurement management. C is incorrect as project resource management can be used with any type of organization structure.

### **19.2: Where is the Project Resource Planning developed in the Plan Flowchart? (PMT2ed p.211)**

- a. After the CPM analysis and Gantt chart have been developed.
- b. After the cash flow statement.
- c. After the organization structure has been established.
- d. After the project procurement planning has been calculated.

**19.2 Answer:** D is correct. However, this answer needs to be clarified because some project managers might use a different sequence based on the needs of the project and their experience. The text has assumed that the procurement constraints, particularly long lead items, are less flexible than the project resource constraint and the project cash flow constraints, and project resource constraints are less flexible than project cash flow constraints. This is why project resource planning follows project procurement and is performed ahead of project cash flow. A and D are incorrect for the above reason.

### **19.3 Which of the following relate to the Project's Execution Strategy? (PMT2ed p.211)**

- a. A management decision that compares the costs and benefits of manufacturing a part of the project or component of the project against the costs and benefits of purchasing it.
- b. The act of choosing between manufacturing a product in-house using company resources or purchasing it from an external supplier. In a make-or-buy decision, the four most important factors to consider are resources, cost, availability and quality of the component.
- c. The buy decision depends on the funds available to make the project.
- d. The execution strategy outlines how the project will be implemented into its operating environment.

**19.3 Answer:** A and B are correct. The execution strategy focuses on who will make the different parts of the project, which is usually expressed as the 'make or buy' decision. C is incorrect as project funds will need to be available whether the components are made in-house or outsourced. D is incorrect as the execution strategy focuses on the who will make the project and not how the project will be implemented into its operating environment.

### **19.4: Which of the following are Project Resources? (PMT2ed p.223)**

- a. The equipment to make the project.
- b. The skilled workforce to make the project.
- c. The drawings and specifications that define the content of the project.
- d. The project plan that outlines when the work will be performed.

**19.4 Answer:** A and B are correct. Resources are the machines, equipment and competent people that make the project. C is incorrect as the drawings and specifications are not considered as resources. D is incorrect as the project plan is not considered as a resource.

**19.5: Which of the following items of information are required to draw the Resource Histogram? (PMT2ed p.223)**

- a. The resources labour rate.
- b. The resource histogram which can only be used with a matrix organization structure.
- c. An early start Gantt chart (that has already considered the procurement requirements to ensure that the materials and equipment are available for the work)
- d. A resource forecast (estimating the resource requirement) per activity per day and the resources available.

**19.5 Answer:** C and D are correct. The resource histogram can only consider one resource at a time where the resource loading and availability are compared. This highlights resource overload and underload – both need to be addressed by the project manager. A is incorrect as the cost of the resources is not generally considered in the resource histogram. B is incorrect as the resource histogram can be used with any type of organization structure.

**19.6: Which of the following relate to Resource Smoothing? (PMT2ed p.226)**

- a. Time-limited resource scheduling.
- b. Smoothing over inter-personal conflict to keep the project team operating efficiently.
- c. Resource-limited resource scheduling.
- d. Improving the workforce skills level.

**19.6 Answer:** A and C are correct. Time-limited resource smoothing and resource-limited resource smoothing are two different types of resource smoothing. B is incorrect as resource smoothing does not relate to inter-personal conflict. D is incorrect as the skills of the workforce do not relate to resource smoothing.

**19.7: Which of the following relate to Time-Limited Resource Smoothing? (PMT2ed p.228)**

- a. If the planning forecasts a time overrun, all the different resources are increased so that the project can be completed on time.
- b. Reduce the scope of work so that the resources available are able to complete the project on time.
- c. Consider the difference in costs between the cost of increasing the resources to complete the project on time, compared to the cost of time penalties.
- d. If the planning forecasts an overrun only the resources on critical activities are increased so that the project can be completed on time.

**19.7 Answer:** B, C and D are correct. Time-limited resource smoothing relates to actions taken to complete the project on time. This could include reducing the scope of work or increasing the number of resources. The project manager should also consider the best cost option as it might be more cost-effective to accept time penalties if the cost of completing the project on time is greater. A is incorrect as increasing the resources on non-critical activities will only increase the amount of float and, therefore, be considered a waste of project resources.

**19.8: Which of the following relate to Resource-Limited Resource Scheduling? (PMT2ed p.229)**

- a. The number of resources that can work in an area or on the project at any one time.
- b. A limited number of work stations or equipment.
- c. The resources have limited capability (technical, competency and experience).
- d. A confined space might limit the number of resources able to work in the area at the same time.

**19.8 Answer:** A, B and D are correct. Resource-limited resource smoothing relates to actions taken to limit the number of resources working at any one time. This might be influenced by the space available or the number of machines and equipment available. C is incorrect as resource-limited resource smoothing relates to the number of resources and not the capability of the resources.

**19.9: Which of the following relate to how the project manager could Increase Project Resources? (PMT2ed p.230)**

- a. Instruct the resources to work overtime.

- b. Subdivide the work into shift work.
- c. Use subcontractors.
- d. Reduce the scope of work.

**19.9 Answer:** A, B and C are correct. These are all methods to increase the number of resources available. Increasing the amount of overtime worked will increase the number of man-hours, shift work will increase the resources in confined spaces, and using subcontractors will increase the resources available. D is incorrect as, although this will match the scope of work to the resources available, this does not answer the question.

**19.10: Which of the following relate to how the project manager could Reduce Project Resources?** (PMT2ed p.231)

- a. Send the additional resources on holiday.
- b. Send the additional resources on training courses.
- c. Instruct the resources to work slower to keep the resources actively employed for longer.
- d. Assign the resources to company maintenance work.

**19.10 Answer:** A and B are correct. Assuming the resources are full-time employees then sending them on holiday or training courses are options. C is incorrect as this option is commercially unproductive. D is incorrect as company maintenance work is not a project responsibility. D would have been correct if the resources were assigned to maintain the project team's equipment but not general company maintenance.

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## **PMT2ed, Chapter 20: Project Cost Management (Estimating) (PMT2ed p.232)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **20.1: Which of the following relate to Project Cost Management? (PMT2ed p.232)**

- a. The Project Cost Management knowledge area includes the processes and activities that enable the project manager to complete the project within budget.
- b. The project budget is how much money the project manager has been allocated to complete the project.
- c. Project finance outlines how the budget is determined.
- d. The return on investment ensures that the project makes a profit.

**20.1 Answer:** A and B are correct. Project cost management is the project management process required to complete the project within the allocated budget. C is incorrect as the project finance is a method of raising funds not determining budgets. D is incorrect as this is the definition of project finance not project cost management.

### **20.2: When is Project Cash Flow developed in the Project Flow Chart? (Figure 20.1) (PMT2ed p.233)**

- a. Immediately after resource planning.
- b. Immediately after scope management.
- c. Immediately after earned value monitoring and control.
- d. Immediately after the project charter.

**20.2 Answer:** A is correct. However, this answer needs to be clarified because some project managers might use a different sequence based on the needs of the project and their experience. The text has assumed that the procurement constraints, particularly long lead items, are less flexible than the project resource constraints and the project cash flow constraints, and project resource constraints are less flexible than the project cash flow constraints. This is why project cash flow follows project resource planning. B, C and D are incorrect for the above reason.

### **20.3: Which of the following relates to the Estimating Continuum? (Figure 20.2) (PMT2ed p.234)**

- a. The estimating continuum shows that the level of accuracy of the estimate is related to the cost to produce the estimate.
- b. As the level of the estimate's accuracy increases so the cost to produce the estimate reduces.
- c. Project costing is performed at the business case stage.
- d. The estimating continuum can only be set up when using a matrix organization structure.

**20.3 Answer:** A is correct. There is an obvious link between the amount of work to produce a more accurate estimate and the cost to produce the estimate. B is incorrect as the cost to produce a more accurate estimate would typically be more expensive. C is incorrect as project costing is based on identifying all the items of work at the work package level. D is incorrect as the estimating continuum is not related to the matrix organization structure.

### **20.4: Which of the following explain the difference between Top-Down and Bottom-Up Estimating? (PMT2ed p.235)**

- a. Top-down estimating means the CEO produces the estimate for the project.
- b. Bottom-up estimating means the work force produce the estimate for the project.
- c. Top-down estimating means the project's estimate is produced at the deliverable level and subdivided down to the work package level.
- d. Bottom-up estimating means the project's estimate is produced at the work package level and rolled up to the project level.

**20.4 Answer:** C and D are correct. The top-down and bottom-up estimating techniques approach the estimating from different angles. Top-down is often used to produce an estimate quickly, while bottom-up is usually a more detailed estimate at the work package and, therefore, should be more accurate. A is incorrect as, although the CEO might determine the strategic budget for the business case, the budget for the project is determined

by the project sponsor. B is incorrect as bottom-up estimating is the term used to describe how the estimator rolls up the estimate from the work package level.

**20.5: Which of the following relate to Direct Costs?** (PMT2ed p.236)

- a. The cost of running the company's head office.
- b. The cost of running the project office.
- c. The resources that work on the project.
- d. The resources working on maintaining the company's equipment.

**20.5 Answer:** B and C are correct. The project office and resources are direct costs to the project. A is incorrect as the company's head office should be an indirect cost. D is incorrect as the resources working on maintaining the company's equipment should be an indirect cost.

**20.6: Which of the following relate to the Labour Rate?** (Table 20.1) (PMT2ed p.238)

- a. The labour rate is the amount the workforce is paid.
- b. The labour rate makes a contribution to the CEO's company car and luxury offices.
- c. The labour rate includes all the associated costs; salary, supervision, holidays, training and profit.
- d. The labour rate includes the cost of materials.

**20.6 Answer:** B and C are correct. If the labour rate is a company's only source of income then it must include a contribution to cover all the company's expenses. A is incorrect as the workers' salary is only part of the labour rate. D is incorrect as the labour rate does not include the cost of materials as these are covered in the procurement costs.

**20.7: Which of the following relate to Procurement Costs?** (Table 20.2) (PMT2ed p.240)

- a. The cost of obtaining tenders and quotation for supplying materials and components.
- b. The cost of receiving the procured goods.
- c. The cost of quality checking the procured goods.
- d. The cost of the resources to make the project.

**20.7 Answer:** A and B are correct. The procurement costs include all the costs associated with obtaining the bought in items. It is an accounting decision to decide which budget the receiving, warehousing and distribution costs fall into. C is incorrect as the cost of checking the quality of the procured items should be included in the quality budget. D is incorrect as the cost of resources are covered in the resources budget.

**20.8: Which of the following relate to Unit Rates?** (Table 20.3) (PMT2ed p.241)

- a. Cost per linear metre of welding.
- b. Cost per square metre of painting surface.
- c. Cost per cubic metre of concrete.
- d. Cost per metre of procurement.

**20.8 Answer:** A, B and C are correct. There are many items of work that can be estimated using unit rates. This makes the estimating easier and passes the risk to the contractor who ultimately has more control over the work. D is incorrect as it does not make sense to relate the unit cost to procurement.

**20.9: Which of the following relate to Establishing the Project's Budget?** (PMT2ed p.242)

- a. The project's budget is the same as the cost estimate.
- b. The project's budget includes the company's profit.
- c. The project's budget is the allocation of funds to make the project or work package.
- d. The project manager is responsible for establishing the project's budget.

**20.9 Answer:** C is correct. Although the estimate is usually compiled by the project manager, it is the project sponsor or client who decide on the project's budget.

A is incorrect as explained above. B is incorrect as the project's budget does not include the company's profit. D is incorrect as the project's budget is developed from the business case and, therefore, is the responsibility of the project sponsor. However, the project sponsor



needs to discuss and negotiate with the project manager to ensure the project can be made with the allocated budget.

**20.10: You are managing two projects. Project A is over budget while Project B is under budget. Which of the following should you do?**

- a. Transfer funds from Project B that is under budget to Project A that is over budget.
- b. Leave the two projects budgets as they are and manage each one separately.
- c. Audit both projects.
- d. Crash Project A to reduce the project's costs.

**20.10 Answer:** B and C are correct. The two projects should be managed separately as, by definition, they are unique. Conducting a project audit might identify why one is successful and the other not so. A is incorrect because if you fudge the budgets then the company will not learn any lessons and the closeout report will be compromised. D is incorrect as crashing the project is likely to increase the project's costs.

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## **PMT2ed, Chapter 21: Project Cash Flow (PMT2ed p.246)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **21.1: Which of the following relates to the Project Cash Flow? (PMT2ed p.246)**

- a. The project's profit and loss account.
- b. The project's financial return on investment.
- c. The project's cash flow statement integrates the project's cash flow and schedule.
- d. The depreciation of the project's equipment over the duration of the project.

**21.1 Answer:** C is correct. The project cash flow summates the project's income and expenses and presents it as a monthly table or graph plotted against the project's timeline. A is incorrect as the profit and loss account does not relate to the project's cash flow. B is incorrect as the project cash flow is not related to the project's return on investment. D is incorrect as depreciation is not a flow of cash. Company assets should not appear on a project cash flow statement as they do not represent a movement of cash. Although appreciation and depreciation might represent a flow of value, they do not represent a physical inflow or outflow of cash.

### **21.2: Where is the Project Cash Flow developed in the Project Flow Chart? (Figure 20.1) (PMT2ed p.211)**

- a. Immediately after the scope of work has been developed.
- b. Immediately after the project schedule has been developed to include the procurement scheduling and resource scheduling.
- c. Immediately before the earned value is calculated.
- d. Immediately before the project charter has been developed.

**21.2 Answer:** B is correct. The project management plan flowchart shows the relative position of the project cash flow with respect to the other topics. However, this answer needs to be clarified because some project managers might use a different sequence based on the needs of the project and their experience. The text has assumed that the procurement constraints, particularly long lead items, are less flexible than the project resource constraints and project cash flow constraints and, further, that project resource constraints are less flexible than the project cash flow constraints. Therefore, the project cash flow is finalized after the project resources. A, C and D are incorrect for the above reason.

### **21.3: Which of the following Cash Flows relate to the Project Sponsor and the Project Manager? (PMT2ed p.247)**

- a. The project sponsor's cash flow is based on project finance (investment and return).
- b. The project manager's cash flow is based on the project's progress payments and expenses.
- c. The project sponsor's cash flow is based on the country's economic cycle.
- d. The project manager's cash flow is based on the company's economic cycle.

**21.3 Answer:** A and B are correct. The project sponsor and project manager have different objectives. The project sponsor's cash flow objectives are derived from the business case and the project manager's cash flow objectives are derived from the project charter and project plan. C is incorrect as the project sponsor's cash flow is not related to the economic cycle. D is incorrect as the project manager's cash flow is not related to the company's economic cycle.

### **21.4: Why is maintaining a positive Project Cash Flow important? (PMT2ed p.246)**

- a. A positive cash flow indicates that the project budget has sufficient funds to pay for the project's expenses.
- b. A positive cash flow indicates that the project does not need to borrow any money.
- c. A positive cash flow indicates that the project will make a positive return on investment.
- d. A positive cash flow indicates that the project will come in under budget.

**21.4 Answer:** A and B are correct. A positive cash flow indicates that the project's account has sufficient funds to pay for the procurement and the contractors without the need to borrow. C is incorrect as the cash flow is not related to the company's return on investment. D is incorrect as the cash flow is not related to the project's budget.

**21.5: Which of the following relate to Project Cash Flow timing? (PMT2ed p.250)**

- a. The work force is usually paid monthly.
- b. The payment for the procurement of outside materials and components is usually 1-3 months after delivery.
- c. The depreciation of the project team's equipment is usually quantified as a month or yearly cash flow.
- d. The income is usually from monthly project progress payments.

**21.5 Answer:** A, B and D are correct. Project accounts are usually collated at the end of month. This certainly applies to the in-house resources. Contractors will probably be given a month's credit and procurement could be longer. On the income side this will be either progress payments or stage payments. C is incorrect as depreciation is not a flow of cash. Company assets should not appear on a project cash flow statement as they do not represent a movement of cash. Although appreciation and depreciation might represent a flow of value they do not represent a physical inflow or outflow of cash.

**21.6: Which of the following relates to Project Invoicing? (Figure 21.4) (PMT2ed p.256)**

- a. Invoices are documents used to issue instructions.
- b. Invoices must always have the same number – the project number.
- c. Invoices are issued by the project to the client requesting payment for work done as per the contractual agreement.
- d. Invoices are issued by the project sponsor requesting payment from the project.

**21.6 Answer:** C is correct. The invoice is the agreed method of requesting payment for work done. It is issued by the contractor or supplier of the goods or services and sent to the client. The invoice could be issued by the project office to the client or from a contractor to the project office. A is incorrect as an invoice is a request for payment not a means of issuing instructions. B is incorrect as each invoice must have a unique number to distinguish it from the other invoices, especially when the amounts are the same. Where possible the invoice should include the project number so that it can easily be distinguished from other projects. D is incorrect as explained by answer C.

**21.7: Which of the following relate to Cost-to-Complete? (PMT2ed p.257)**

- a. The cost-to-complete is the total cost to make the project.
- b. The cost-to-complete is the time it takes to complete the project.
- c. The cost-to-complete are the funds required to complete the project.
- d. The cost-to-complete enables the client (or project sponsor) to make the comparison between the funds to complete the project and the benefit the project will realize for the company.

**21.7 Answer:** C and D are correct. The cost-to-complete the project is the amount of funds required to complete the project. At the project sponsor's level, if the cost-to-complete exceeds the benefit to the company it could be argued that the project is shelved. A is incorrect as cost-to-complete is the cost from timenow to the end of the project. B is incorrect as the time it takes to complete the project relates to the project schedule and not directly to the cost-to-complete.

**21.8: Which of the following relate to cost S curve? (PMT2ed p.258)**

- a. The project's cost S curve starts from zero to the total cost at the end of the project.
- b. The cost S curve is developed from an integration of cost and time.
- c. The cost S curve follows the Z curve.
- d. The cost S curve is also known as the S bend.

**21.8 Answer:** A and B are correct. When the project's costs are plotted against time the graph usually forms the classic S curve. This is an important graph because it is used in the earned value calculation. C is incorrect as there is no such thing as a Z curve. D is incorrect as the S bend is usually associated with a household appliance.

**21.9: What actions should the Project Manager take to address Negative Cash Flow? (PMT2ed p.259)**

- a. Delay expenditure payments.

- b. Arrange longer credit period.
- c. Look into ways of starting activities earlier.
- d. Bring forward income claims.

**21.9 Answer:** A, B and D are correct. The project cash flow statement should forecast the possibility of any periods of negative cash flow. These are the classic three actions project managers use to address negative cash flow. C is incorrect as starting activities earlier is likely to increase the negative cash flow. However, this needs to be qualified as there might be activities where the income from the client is received before the invoices, associated with the cost of making the work packages, are due to be paid.

**21.10: Which of the following relate to Performance Bonds and Retention (PMT2ed p.259)**

- a. Retention relates to the level of staff turnover in the project team.
- b. A bond is a fixed term investment in the project.
- c. A bond is named after James Bond when he was governor of the bank of England.
- d. Retention is the holding back of an agreed percentage of the progress payments.

**21.10 Answer:** D is correct. A performance bond is issued as a guarantee against the failure of the contractor to meet obligations specified in the contract. A retention is the holding back of an agreed percentage of a progress payment for an agreed period of time to ensure compliance. A is incorrect as this does not relate to the accounting retention. B is incorrect as this does not relate to a performance bond. C is incorrect as James Bond is a fictional character.

## **PMT2ed, Chapter 22: Project Control (PMT2ed p.262)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **22.1 Which of the following relate to Project Control? (PMT2ed p.262)**

- a. Comparing actual performance with planned performance.
- b. Analyzing the variances between planned and actual.
- c. Assessing trends to effect process improvements.
- d. Organising team building exercises to improve the project team's performance.

**22.1 Answer:** A, B and C are correct. The project control process captures data, compares actual with planned, analyzes variances, assesses trends, evaluates possible alternatives, and recommends possible appropriate corrective action as needed. C is incorrect as team building is not part of project control.

### **22.2: Where is Project Control developed in the Project Management Plan Flowchart? (Figure 20.1) (PMT2ed p.262)**

- a. Immediately after the scope of work.
- b. Immediately after the project charter.
- c. Immediately after the project plan.
- d. Immediately after the project closeout report.

**22.2 Answer:** C is correct. Project control officially starts after the Project Plan has been established. Monitoring and control can only be applied against a plan outlining how to achieve an objective. However, it would be wrong to imply that there is no project control before the project plan is established as the project management approach is to plan and control every reporting cycle. A, B and D are incorrect for the above reason.

### **22.3 Which of the following relates to the Project Control Cycle? (Figure 22.1) (PMT2ed p.263)**

- a. The control cycle starts with the business case.
- b. Monitoring progress captures data on the project's performance.
- c. The scope change control function enables the project manager to make approved changes to the scope of work.
- d. The data for the closeout report is only gathered at the end of the project.

**22.3 Answer:** B is correct. The project control function is to monitor performance against the project plan and guide the project to achieve its objectives. A is incorrect as the control cycle starts with the baseline plan, the business case is part of the project sponsor's control cycle. C is incorrect as the scope change refers to the scope of work not the project's performance. D is incorrect as the data for the closeout report should be gathered as the project progresses. Why wait to incorporate lessons learnt until the end of the project?

### **22.4: Which of the following relates to Data Capture? (PMT2ed p.266)**

- a. Data capture is only made at the end of the project to confirm the full scope of work is complete.
- b. Data capture on progress is only made monthly to co-inside with the monthly report.
- c. The project manager is responsible for monitoring the project's progress.
- d. The project sponsor is responsible for monitoring the project's progress.

**22.4 Answer:** C is correct. It is the project manager's responsibility to produce the project plan, which integrates all the individual plans. This project plan is then used as the basis to compare actual with planned. To do this data capture is required to determine the current status at timenow. A is incorrect as data capture should happen throughout the project's lifecycle. B is incorrect as data capture can happen at any time as and when appropriate, but it would be actioned formally to co-inside with the agreed reporting period. D is incorrect as explained above.

### **22.5: Which of the following relates to Project Variances? (PMT2ed p.262)**

- a. Project variance is the difference between planned and actual performance.
- b. The project variance process focuses on the project costs.

c. Being able to use the project variance process is one of the benefits of using the project matrix organization structure.

d. Project crashing is a form of comparing the project's performance.

**22.5 Answer:** A is correct. Variance analysis highlights the difference between two parameters. In the project case, this is the comparison between reported performance and planned performance. B is incorrect as project variance analysis is not restricted to project costs. C is incorrect as project variance is not restricted to any particular organization structure. D is incorrect as project crashing is not related to project variance.

**22.6: Which of the following relates to Fast-Tracking?** (PMT2ed p.115)

a. Fast-tracking is a technique for reducing the duration of all activities.

b. Fast-tracking is a technique that changes the logic of the activities from series to parallel and reduces the end date of the project.

c. Fast-tracking is a technique for reducing the level of quality that in turn reduces the duration of the activities.

d. Fast-tracking is a technique which not only reduces the activity duration but also reduces the activity costs.

**22.6 Answer:** B is correct. Fast-tracking is a schedule compression technique that changes the logic of the project and should not be confused with crashing, which reduces the duration of the activities. By performing the activities in parallel as opposed to in series will reduce the duration of the project. A is incorrect because fast-tracking does not reduce the duration of the activities as explained above. C is incorrect as quality does not relate to fast-tracking. D is incorrect as fast-tracking does not reduce the duration of the activities, as explained above. Reducing the duration of an activity by crashing usually increases the cost of performing the activity.

**22.7: Which of the following relate to Crashing?** (PMT2ed p.262)

a. Project crashing is when one of the site vehicles has an accident.

b. Crashing is a method of reducing the project's duration without increasing the project's budget.

c. Crashing is a technique for reducing the duration of an activity.

d. Crashing is a technique used to reduce the duration of activities on the critical path.

**22.7 Answer:** C and D are correct. Crashing or acceleration are the terms used for the technique that reduces the duration of an activity. There are a number of ways this can be achieved; adding more resources, working overtime, etc. One of the key features of this technique is that only the activities on the critical path should be crashed as crashing non critical activities only increases their float. A is incorrect as this does not relate to project crashing. B is incorrect as crashing usually increases activity costs.

**22.8: Which of the following relate to Problem Solving?** (PMT2ed p.270)

a. Problem solving is a convergent process to present one solution.

b. Problem solving is a divergent process to present a number of solutions.

c. Problem solving generates a number of technical solutions.

d. Problem solving increases risk of rework.

**22.8 Answer:** B and C are correct. Problem solving should address any problems that are or could prevent the project achieving its objectives. Problem solving is considered as a creative and innovative process to generate a number of technical solutions where any one of them could help address the project's problems. A is incorrect as problem solving should be a divergent process offering a range of possible solutions. D is incorrect as this is a meaningless comment.

**22.9: Which of the following relate to Decision-Making?** (PMT2ed p.272)

a. Decision-making is a convergent process.

b. Decision-making is a divergent process.

c. Decision-making confirms the managers making the decisions have the authority to do so.

d. Decision-making is a process to gain commitment and support from the stakeholders for one course of action.

**22.9: Answer:** A, C and D are correct. The presentation of a number of possible solutions is where the problem solving process ends and the decision-making process starts. The decision-making process considers the environment into which the decision will be implemented and gains commitment from the team members and stakeholders so that it can converge on one course of action. B is incorrect for the reason as outlined above.

**22.10: Which of the following relate to Applying Project Control?** (PMT2ed p.274)

- a. The project manager needs to come down hard on any managers that report that they will complete their scope of work late.
- b. Making the contractors aware of the cost of delays helps to encourage them to achieve the required targets.
- c. A key feature of project control is to identify and document lessons learnt.
- d. Do not pressure managers that are too busy to report on their progress because this will delay the job further.

**22.10 Answer:** B and C are correct. It is important that the project manager communicates project information with the team members, in-house resources and contractors so that all stakeholders are aware of what is happening. By setting targets this will not only prevent the project drifting aimlessly but will motivate the managers to achieve the agreed targets. It is important to assess the knowledge gained during the project to identify what went right and what went wrong - otherwise there is a good chance mistakes will repeat themselves. A is incorrect as punishing the managers for reporting poor performance should be avoided. If not, in the future, the managers will be reluctant to give any information for fear that it will be held against them. D is incorrect as, although it might sound counter intuitive, if managers do not report their progress then the other managers working on the project cannot assist them in reaching their challenging targets.

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**PMT2ed, Chapter 23: Earned Value** (PMT2ed p.276)

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**23.1: Which of the following parameters can be used for the Earned Value calculation?**

(PMT2ed p.276)

- a. Project costs.
- b. Project man-hours.
- c. Tonnes of steel erected.
- d. Number of project meetings.

**23.1 Answer:** A, B and C are correct. The earned value calculations were originally set up to plan and control project costs; it is now more commonly used to plan and control man-hours. In practice, the EV process can be applied to any parameter that flows through the project. D is incorrect as the number of project meetings do not really relate to a project's performance.

**23.2: Where is the Earned Value calculated in the Project Management Plan Flowchart?** (Figure 20.1) (PMT2ed p.276)

- a. Immediately after the scope of work.
- b. Immediately after the project charter.
- c. Immediately after the project plan.
- d. Immediately after the project closeout report.

**23.2 Answer:** C is correct. Earned value is one of the techniques within the project control function. Project control officially starts after the Project Plan has been established. Monitoring and control can only be applied against a plan outlining how to achieve an objective. However, it would be wrong to imply that there is no project control before the project plan is established as the project management approach is to plan and control every reporting cycle. A, B and D are incorrect for the above reason.

**23.2: Which of the following equations are correct?** (PMT2ed p.279)

- a.  $EV \text{ (Earned Value)} = PC * BAC$
- b.  $ETC \text{ (Estimate-to-Complete)} = EAC - AC$
- c.  $SV \text{ (Schedule Variance)} = AC - PC$
- d.  $CV \text{ (Cost Variance)} = EV - PC$

**23.2 Answer:** A and B are correct. C is incorrect because it should be  $SV = EV - PV$ . D is incorrect because it should be  $CV = EV - AC$  (The realized cost incurred for the work performed on an activity during a specific time period).

**23.2: In the latest body of knowledge some of the Earned Value terms have changed. What did Planned Value (PV) used to be called?** (PMT2ed p.279)

- a. BCWS
- b. BCWP
- c. ACWP
- d. BAC

**23.2 Answer:** A is correct. Planned Value (PV) used to be called Budgeted Cost of Work Scheduled (BCWS).

**23.3: Which of the following Earned Value Equations are correct?** (PMT2ed p.279)

- a.  $EV = PC * BAC$
- b.  $ETC = EAC - AV$
- c.  $SV = EV - PC$
- d.  $CV = EV - PC$

**23.3 Answer:** A and B are correct.

**23.4: Which of the following is the correct sequence to draw the Earned Value Graph?** (PMT2ed p.280)

- a. PV, AC, PV.



- b. PV, EV, AC.
- c. AC, PV, EV.
- d. EV, AC, PV.

**23.4 Answer:** B is correct. PV is drawn first to establish the plan to follow. EV is drawn second to show progress to timenow, which can be extrapolated to indicate a forecasted end date. Then AC is drawn to the end date to indicate total cost forecast. A, C and D are incorrect.

**23.5: If the PV is \$1,000, the EV is \$800 and the AC is \$1,200 what is the SV?** (PMT2ed p.284)

- a. 200
- b. -200
- c. 100
- d. -100

**23.5 Answer:** B is correct.  $SV = EV - PV (800-1,000) = -\$200$

**23.6: If the PV is \$1,000, the EV is \$800 and the AC is \$1,200 what is the CV?** (PMT2ed p.284)

- a. 400
- b. 300
- c. 400
- d. -400

**23.6 Answer:** D is correct.  $CV = EV - AC (800-1,200) = -\$400$

**23.7: If the earned value is \$1000 and the actual cost of the work performed is \$2000, what is the CPI (cost performance index)?** (PMT2ed p.279)

- a. 1000
- b. 2
- c. 0.5
- d. None of the above.

**23.7 Answer:** C is correct.  $CPI = EV / AV, CPI = 1000 / 2000 = 0.5$ .

**23.8: Which of the following indicate that the project is doing well? Select the best option?** (PMT2ed p.285)

- a. A negative Cost Variance.
- b. An SPI of less than one.
- c. A negative schedule variance
- d. A CPI of greater than one.

**23.8 Answer:** D is correct. A CPI of greater than one indicates that the project is spending less funds than planned (PV) to perform the work. A is incorrect as a negative cost variance indicates that the cost is higher than the original estimate (BAC). B is incorrect as a SPI less than 1 indicates that the project is behind schedule. C is incorrect as a negative schedule variance indicates that the project is behind planned progress.

**23.9: Which of the following relate to the BAC (Budget-at-Completion)?** (PMT2ed p.280)

- a. The BAC includes profit.
- b. The BAC does not include profit.
- c. The BAC only applies to project costs.
- d. The BAC is the end point of the PV curve.

**23.9 Answer:** B and D are correct. The BAC does not include profit so that the cost of work can be compared directly with the budget. Figure 23.3 shows the PV 'S' curve ending at the BAC level. This is the original plan or baseline plan. A is incorrect as the BAC does not include profit because the project manager needs to be able to compare costs and budgets directly. C is incorrect as the BAC has become a generic term for the parameter being measured.

**23.10: Which of the following relate to the EAC (Estimate-at-Completion) and ETC (Estimate-to-Complete)? (PMT2ed p.282)**

- a. The ETC indicates an estimate of the funds at timenow to complete the project.
- b. EAC is an extrapolation of the PV curve.
- c. EAC is an extrapolation of the EV curve.
- d. EAC is an extrapolation of the AC curve.

**23.10 Answer:** A and D are correct. The EAC is an extrapolation of the AC curve from timenow to the revised completion date. This assumes that the progress to date will continue at the same rate. The ETC is the difference between AC at time now and the EAC. B is incorrect as the ETC is not drawn from the PV curve. C is incorrect as the ETC is not drawn from the EV curve.

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**PMT2ed, Chapter 24: Project Quality Management (PMT2ed p.294)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**24.1: Which of the following relate to the Project Quality Management? (PMT2ed p.295)**

- a. Project quality management is one of the ten PMBOK knowledge areas.
- b. Quality management is the process of identifying and implementing project quality requirements.
- c. Effective project quality management enables the project manager to fast-track the project and finish earlier than originally planned.
- d. Effective project quality management enables the project manager to make the project to a higher specification than originally planned.

**24.1 Answer:** A and B are correct. Project quality management is one of the ten PMBOK knowledge areas that focuses on how to identify the quality requirements and methods to ensure that they are achieved. Quality in the project's context means that the project is conforming to a standard that is set before the project started. C is incorrect as finishing the project earlier is not a quality required condition. D is incorrect as producing the project to a higher specification is not a required condition and, in addition, this would typically be more expensive.

**24.2: Which of the following are included in the Quality Management Process? (PMT2ed p.295)**

- a. The quality planning process.
- b. The quality assurance and quality control processes.
- c. Project crashing and fast-tracking, used to enable the project manager to finish the project earlier than originally planned.
- d. The continuous improvement process to help the project achieve its objectives more efficiently.

**24.2 Answer:** A, B and D are correct. The four components of project quality management are; quality planning, quality assurance, quality control and continuous improvement. C is incorrect as completing the project earlier than planned is not a quality requirement.

**24.3: Who determines the Required Level of Quality? (PMT2ed p.294)**

- a. The project manager.
- b. The project sponsor.
- c. The classification societies.
- d. The project team.

**24.3 Answer:** B and C are correct. The required level of quality is determined at the business case level as this is often a commercial decision. This decision should be made in conjunction with the national and international standard the project must comply with. A is incorrect as the project manager is given the required level of quality in the project charter document. B is incorrect as the project team are given the required level of quality in the project charter document.

**24.4: Which of the following relate to Quality Planning? (PMT2ed p.296)**

- a. Quality planning identifies the quality requirements.
- b. Quality planning identifies the standards the project has to achieve.
- c. Quality planning outlines a methodology of systems, practices, techniques, procedures and build-method on how to make the project.
- d. Quality planning inspects the project and confirms it has been made to the required condition.

**24.4 Answer:** A and B are correct. The quality planning process firstly identifies the requirements (internal and external) and then produces a plan on how to achieve the requirements. C is incorrect as this refers to how to make the project. D is incorrect as this answer refers to quality control.

**24.5: Which of the following relate to Quality Assurance (QA)? (PMT2ed p.297)**

- a. Quality assurance is a systematic process of developing management processes to ensure that all aspects of the project will be consistently made to the required condition.
- b. Quality assurance ensures that the work force is capable of performing the work to the required standard.
- c. Quality assurance continually improves the project's manufacturing process.
- d. Quality assurance inspects the project to ensure that it has been made to the required condition.

**24.5 Answer:** A and B are correct. Quality assurance is the process of ensuring that all aspects of the company performing the project are capable of performing the work to the required condition – right first time. C is incorrect as continuous improvement is not a quality assurance function. D is incorrect as inspection is a quality control function.

**24.6: Which of the following relates to Quality Control? (PMT2ed p.299)**

- a. Quality control is the process the project manager uses to confirm the project has achieved the required condition.
- b. Quality control uses the most expensive materials to ensure that the project achieves the highest level of quality.
- c. Effective quality control enables the project manager to continuously improve the project.
- d. Quality control is able to inspect quality into the project.

**24.6 Answer:** A is correct. Project control inspects the project to confirm it has reached the required condition. Conformance is a general concept of delivering results that fall within the limits that define acceptable variation for a quality requirement. Project control uses a number of techniques that enable the project manager to demonstrate compliance with quality requirements, these include observation, in-process control to NDT (non destructive testing). B is incorrect as the purpose of quality control is to achieve a predefined condition not to increase level of quality. C is incorrect as quality control and continuous improvement are two different aspects of project quality management. D is incorrect as quality control cannot inspect quality into a project. If the quality is not already there then no amount of inspections will increase its level of quality.

**24.7: Which of the following relate to a Quality Audit? (PMT2ed p.294)**

- a. A quality audit can be initiated by a NCR (non conformance report) to investigate the cause of the defect.
- b. An audit compares actual condition with planned or required condition.
- c. An audit is an official inspection of the project's accounts by an independent body to check the project has paid the correct amount of tax and the project is complying with the tax laws.
- d. It is the project manager's responsibility to carry out a project audit when required.

**24.7 Answer:** A and B are correct. An audit is an official inspection to compare the actual situation with the planned or the required condition. This is usually carried out by a third party person or company to ensure that the audit is independent to the company or project. C is incorrect as the quality audit and the tax audit are auditing two different aspects of the project. D is incorrect as it is the Quality Manager's responsibility to carry out internal company audits in line with the company's quality management system.

**24.8: Which of the following relates to Continuous Improvement in the project management process? (PMT2ed p.302)**

- a. Quality circles.
- b. Turning circles.
- c. Crop circles.
- d. Reporting cycles.

**24.8 Answer:** A is correct. Continuous improvement and quality circles are the terms used by companies to describe their ongoing, continuous effort of engaging the workforce and project teams to improve information, materials, products, services or processes related to the project environment. B is incorrect as turning circles relate to traffic configuration. C is incorrect as crop circles are a man made or natural phenomena that do not relate to continuous improvement. D is incorrect as reporting cycles are not related to continuous improvements.

**24.9: Which of the following relate to the Cost of Quality? (PMT2ed p.294)**

- a. The cost of quality is free.
- b. Failure costs (cost of non-conformance) include costs to rework products, components, or processes that are noncompliant.
- c. Prevention and appraisal costs (cost of conformance) include costs for quality planning, quality control (QC), and quality assurance (QA).
- d. The cash flow statement shows the cost of quality.

**24.9 Answer:** A, B and C are correct. The cost of quality is usually associated with the prevention costs and inspection costs. Some companies also include the cost of rework as this helps to highlight financially a direct link between the need to improve quality management and failure costs. Philip Crosby's belief was that an organization that establishes a quality program will see savings that more than pay for the cost of the quality program. He used the phrase '*Quality is Free*' for the title of his book. D is incorrect as the cost of quality is not shown on the cash flow statement.

**24.10: Which of the following relate to how the Project Manager should manage Defects? (PMT2ed p.299)**

- a. The project manager should raise a NCR (non conformance report) as required by the quality management system.
- b. The project manager should investigate why team members defect to another company.
- c. The raising of a NCR triggers a quality audit if more information on the defect is required.
- d. Defects that do not obviously impact on the project's performance should not be disclosed to the client as there is no point causing the client unnecessary concern.

**24.10 Answer:** A and C are correct. The raising of a NCR officially documents that the defect has been acknowledged and initiates the agreed quality management response. One of the responses might be to initiate a quality audit to gather more information before corrective action is authorised and to eliminate the causes of unsatisfactory performance. B is incorrect as the meaning of 'defect' in the quality management situation is different to the meaning of 'defect' in the team member retention context. D is incorrect as all defects should be reported to the client. This will be part of the contractual agreement. It is important that the project manager maintains a high level of trust with the project sponsor.

**PMT2ed, Chapter 25: Project Risk Management (PMT2ed p.306)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

**25.1: Which of the following relate to Project Risk Management? (PMT2ed p.306)**

- a. Risk planning.
- b. Risk identification.
- c. Risk mitigation and control.
- d. Continuous improvements.

**25.1 Answer:** A, B and C are correct. Risk management includes the processes and activities that enable the project manager to ensure that the project can achieve its objectives at an acceptable level of risk. D is incorrect as continuous improvements are a quality management function not a risk management function.

**25.2: Which of the following are Project Risks? (PMT2ed p.306)**

- a. Events that prevent the project achieving its objectives.
- b. A competitor that brings a better product to market.
- c. Unable to complete the project within the assigned budget.
- d. Realising return on investment.

**25.2 Answer:** A and C are correct. A project's success factors are typically expressed as time, cost and quality objectives. A risk can be defined as any situation or event that prevents the project achieving its declared objectives. B is incorrect as this is a business case risk which is different to a project risk. The project could be successful, finishing on time and within budget, but the project could still be a commercial failure. D is incorrect because, as B above, this is a business risk (realizing benefits for the company) not a project risk.

**25.3: Who has the authority to determine the Acceptable Level of Risk within the project? (PMT2ed p.306)**

- a. The project manager.
- b. The CEO and the board of directors.
- c. The project team members.
- d. The project sponsor.

**25.3 Answer:** B is correct. The CEO and board of directors represent the company shareholders who are ultimately responsible for the company's liability. It makes sense, therefore, that the CEO and the board of directors are the only people who can set the acceptable level of risk. A and C are incorrect as the project manager and the team members do not represent the company shareholders and, therefore, do not have the authority to determine the acceptable level of risk within the company or project. They might however be asked to compare the project risk, which is outlined in the project charter and project plan, to the corporate level of acceptable risk. D is incorrect as explained above the project sponsor does not represent the shareholders.

**25.4: Which of the following accurately describe how Risk, Influence and Opportunities change as the project progresses along the project lifecycle? (Figure 25.3) (PMT2ed p.310)**

- a. The level of influence is greatest at the front end of the project where big decisions need to be made.
- b. The potential to add value is greatest near the end of the project when the client can clearly see the impact on the project.
- c. The period of highest risk impact is at the beginning of the project lifecycle.
- d. The period of highest risk impact is at the end of the project lifecycle.

**25.4 Answer:** A and D are correct. The level of influence, risk and opportunity is greatest at the start of the project's development phase when there is the greatest degree of uncertainty about the future (company strategy and market). Although the highest level of risk is at the outset of the project, when this is combined with the amount at stake then the highest risk impact is at the end of the project. B is incorrect for the above reason. C is incorrect for the above reason.

**25.5: Which of the following relate to the Risk Identification Process? (PMT2ed p.311)**

- a. It is the project manager's responsibility to identify and document the characteristics of the uncertainties and potential problems that could limit the project achieving the objectives outlined in the project charter.
- b. It is the project manager's responsibility to identify any potential problems that could prevent the company realizing benefits as outlined in the business case.
- c. The risk control process regularly assesses all aspects of the project to identify any new risks.
- d. It is the project manager's responsibility to ensure that all the team members have different user IDs.

**25.5 Answer:** A and C are correct. The risk identification process is the start of the risk management process. If a risk is not identified its impact will not be assessed until it is too late. The purpose of the risk control process is to ensure that all potential risks that could prevent the project reaching its objectives are continually considered throughout the project. B is incorrect as it is the project sponsor's responsibility to identify any potential problems that could prevent the company realizing benefits as outlined in the business case. D is incorrect as user ID is not part of the risk management identification process.

**25.6: Which of the following relate to the causes of Project Failure? (PMT2ed p.312)**

- a. The project manager was assigned an unrealistic budget.
- b. Misinterpretation of the corporate statement of requirements that lead to a misleading business case.
- c. The project manager was given an unrealistic schedule.
- d. A competitor produces a more attractive and marketable product.

**25.6 Answer:** A and C are correct. Projects are often deemed to have failed because the estimating and planning were based on unrealistic assumptions at the business case phase. These unrealistic assumptions often manifest themselves as an unrealistic budget and an unrealistic schedule, consequently the project ends up over budget and late. B is incorrect as this relates to the strategic business case and not the project. D is incorrect as this relates to the success of the business case and realizing benefits for the company. It is quite feasible that the project will still achieve its critical success factors.

**25.7: Which of the following relate to Risk Quantification? (PMT2ed p.314)**

- a. Risk quantification uses statistical quantitative assessment methods to determine the frequency and probability of the risk occurring.
- b. Risk quantification uses qualitative risk assessment based on educated opinions to produce a relative comparison of the identified risks.
- c. The level of risk is determined by risk control.
- d. Risk quantification uses statistical qualitative assessment methods to determine the frequency and probability of the risk occurring.

**25.7 Answer:** A and B are correct. From the project manager's perspective project risks are often presented as a matrix of frequency of occurrence plotted against the impact on the project. This helps to put project risks into perspective, for example, the high impact risk that is highly unlikely to happen (such as a meteorite) against a lower impact risk (such as inclement weather) which happens more frequently. C is incorrect as determining the level of risk is not a risk control function. D is incorrect as qualitative assessment methods use educated opinions and expert judgement to produce a relative comparison of the identified risks.

**25.8: Which of the following relate to Risk Response? (PMT2ed p.315)**

- a. The first response to risk is to quantify the impact on the project.
- b. Eliminating risk looks into ways of removing the risk completely.
- c. Deflecting the risk transfers the risk to another party, for example, insurance.
- d. Mitigating the risk reduces the risk occurring and, if it occurs, reduces its impact on the project.

**25.8 Answer:** B, C and D are correct. These are three of the different types of risk response. To this list could have been added the acceptance of the risk with a contingency. A is incorrect as quantifying the risk falls under the Risk Quantifying section.

**25.9: Which of the following can be used to Deflect project risk? (PMT2ed p.315)**

- a. Use a fixed price contract to deflect cost risks to the contractor.
- b. Use insurance to deflect insurable risks to the underwriter.
- c. Use a reimbursable cost-plus contract to deflect risk to the contractor.
- d. Use a closeout report to deflect scope of work risks to the quality control department.

**25.9 Answer:** A and B are correct. Deflecting risks transfers risks (in whole or part) to another party. Fixed price contracts and insurance are two methods of transferring risks to another party. C is incorrect as in a reimbursable cost-plus contract the risk is held by the client. D is incorrect as a closeout report is not related to either the scope of work or the quality control department.

**25.10: Which of the following projects can be considered a Success from the project manager's perspective? (PMT2ed p.306)**

- a. The project was completed on time.
- b. The project realized benefits as outlined in the business case.
- c. The operation of the project gave the company a return on its investment.
- d. The project was completed within the allocated budget.

**25.10 Answer:** A and D are correct. The project manager is responsible for achieving the critical success factors as outlined in the project charter. The main three that are often stated are; finish on time, within budget and to the required quality. B is incorrect as realizing benefits as outlined in the business case is a project sponsor's objective. C is incorrect as achieving an operational return on investment is the responsibility of the project sponsor and the operational manager based on the approved business case.

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## **PMT2ed, Chapter 26: Project Communication Management (PMT2ed p.321)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **26.1: Which of the following relate to the Project Communication Management knowledge area? (PMT2ed p.321)**

- a. Project communication management is a PBOOK knowledge area.
- b. Project communication management includes the processes and activities that enable the project manager to ensure the timely and appropriate generation, collection, distribution, storage, retrieval and ultimate disposal of project information.
- c. The project manager is responsible for developing the project communication plan.
- d. The project communication plan includes involving and influencing the stakeholders to converge on an optimum scope of work.

**26.1 Answer:** A, B and C are correct. The project manager's challenge is to develop a communication plan that enables the supply of information to the right people with the right information at the right time. This includes a schedule of meetings, which is an integral part of the planning and control system. D is incorrect and is a bit of a trick question because influencing the project stakeholders used to be part of the project communication knowledge area but, with the new PMBOK, it is now part of a new knowledge area entitled Project Stakeholder Management.

### **26.2: Which of the following relate to the Project Communication Plan? (Figure 26.1) (PMT2ed p.322)**

- a. The project communication plan outlines a method to achieve communication objectives.
- b. The project communication plan analyses the project stakeholders' communication needs.
- c. The project communication plan includes the project schedule, which outlines when the scope of work will be performed.
- d. The project communication plan includes the matrix organization structure, which outlines how to address conflict resolution.

**26.2 Answer:** A and B are correct. The process to develop the project communication plan involves identifying the project stakeholders' communication requirements and developing a method for achieving the objectives. C is incorrect as the project communication plan is not related to the project schedule. D is incorrect as the project communication plan is not related to the matrix organization structure and not related to conflict resolution.

### **26.3: Which of the following relate to RACI? (PMT2ed p.320)**

- a. Responsible, action, consulted and informed.
- b. Reply, accountable, conflict and interaction.
- c. Responsible, accountable, consulted and informed.
- d. Retention, authority, command and influence.

**26.3 Answer:** C is correct. RACI is also known as RAM (responsibility assignment matrix), which describes the participation by various project participants in completing tasks or deliverables for a project.

### **26.4: Which of the following are Types of Project Meetings? (PMT2ed .324)**

- a. Start up meeting.
- b. Progress meeting.
- c. Strategic planning meeting.
- d. Corporate finance meeting.

**26.4 Answer:** A and B are correct. There are a number of different types of project meetings. To the above list could be added; progress meetings, scope change meetings, procurement meetings and handover meetings. C is incorrect as the strategic planning meeting held by the CEO is not part of the project. D is incorrect as the corporate finance meeting held by the CEO is not part of the project.

### **26.5: Which of the following relate to a Start up Meeting? (PMT2ed p.324)**

- a. The start up meeting formally commences the project.

- b. The start up meeting formally reviews the project's progress.
- c. The start up meeting confirms the scope of work.
- d. The start up meeting establishes an agreed schedule of meetings.

**26.5 Answer:** A, C and D are correct. The start up meeting formally initiates the project. Some of the key topics to discuss and confirm include; the project objectives, the scope of work, the deliverables, the build-method and the execution strategy. B is incorrect as the project progress meeting can only happen after the project has started and work commenced.

**26.6: Which of the following relate to a Project Progress Meeting? (PMT2ed p.324)**

- a. The project progress meeting monitors the project's progress based on data capture and discussion (input from team members).
- b. The project progress meeting issues instructions to the project participants to carry out project work in the next reporting period.
- c. The project progress meeting monitors operation maintenance.
- d. The project progress meeting uses the information available to develop trends and forecast what is likely to happen in the next reporting period.

**26.6 Answer:** A, B and D are correct. The project progress meetings provide the project manager an effective forum to coordinate, integrate and manage the project participants. Input is acquired from the progress data capture and the team members. Using the control cycle this data is processed to give trends and, if necessary, corrective action is taken. C is incorrect as operation maintenance is not part of the project's scope of work.

**26.7: Which of the following relate to a Problem Solving workshop? (PMT2ed p.324)**

- a. A problem solving workshop includes a brainstorming session.
- b. A problem solving workshop develops a number of technical solutions.
- c. A problem solving workshop decides on which course of action to take.
- d. A problem solving workshop considers how to implement the project into its operating environment.

**26.7 Answer:** A and B are correct. The purpose of a problem solving workshop is to generate a number of technically feasible solutions. Interactive and innovative brainstorming sessions are often used to identify risks, ideas, or solutions to project issues. C is incorrect as the problem solving workshop is designed to generate a number of solutions or corrective actions to address a need or problem. D is incorrect as the implementation of the project into its operating environment happens after the project has been handed over to the client. This is, therefore, the project sponsor's and/or operations manager's responsibility.

**26.8: Which of the following relate to the Project Handover Meeting? (PMT2ed p.324)**

- a. The project sponsor hands over the project to the project manager.
- b. The project manager hands over the project to the project sponsor.
- c. The project manager hands over the project to the operations manager.
- d. The handover process commissions and runs up the project to confirm it is functioning within its design parameters.

**26.8 Answer:** B and C are correct. When the project deliverables have been commissioned, accepted and approved, the project is then ready to be formally handed over to the client (project sponsor and operations manager) for operation.

A is incorrect as the purpose of the project handover meeting is for the project manager to handover the project to the project sponsor. D is incorrect as commissioning and approval is a prerequisite before the project handover.

**26.9: Which of the following relate to Project Reporting? (PMT2ed p.327)**

- a. Project reporting includes the project status report.
- b. Project reporting includes developing and distributing the company's annual reports.
- c. Project reporting includes the project milestone report.
- d. Project reporting includes reporting on new products the competitors are developing, which could have an impact on the project's commercial viability.

**26.9 Answer:** A and C are correct. Project reporting is one of the mechanisms for collecting and distributing project related information. The project status report presents the actual

progress against the planned progress. If measuring percentage complete or remaining duration is difficult or inaccurate then this can be addressed by including more milestones to determine the project's progress. If this information is coupled with trend reporting then the project manager can determine where and how much control to apply to achieve the project's objectives. B is incorrect as this does not relate to the project. D is incorrect as this is related to the business case, which is the project sponsor's responsibility.

**26.10: Which of the following relate to Document Control? (PMT2ed p.329)**

- a. It is the project manager's responsibility to produce a list of project documents that need to be controlled.
- b. The controlled documents help to control interpersonal conflict between team members.
- c. The control documents are circulated to only the nominated people.
- d. The documents are designed to control the project participants.

**26.10 Answer:** A and C are correct. The purpose of the document control system is to ensure that key documents are sent timeously to the nominated people so that all key stakeholders are confident that they are working with the latest version of all the documents. B is incorrect as the controlled documents are not related to interpersonal conflict. D is incorrect as document control is designed to control the documents and not the project participants.

## **PMT2ed, Chapter 27: Project Leadership (PMT2ed p.332)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **27.1: What is the purpose of Project Leadership? (PMT2ed p.332)**

- a. To establish vision and direction.
- b. To influence and align project participants towards a common purpose.
- c. To empower and inspire team members to achieve success.
- d. To command and control the team members.

**27.1 Answer:** A, B and C are correct. These clearly highlight a number of the key objectives effective project leadership wishes to achieve. D is incorrect as the command and control style of leadership might have been successful in the past but, in today's working environment with a more educated workforce, more involvement and interactive methods are preferred.

### **27.2: Which of the following relate the Situational Leadership model developed by Blanchard and Hersey in 1969? (Figure 27.1) (PMT2ed p.334).**

- a. Directing: High directive and low supportive behaviour.
- b. Commanding: High directive and low supportive behaviour.
- c. Controlling: High directive and low supportive behaviour.
- d. Delegating: Low directive and low supportive behaviour.

**27.2 Answer:** A and D are correct. These are two of the situational leadership quadrants. B and C are incorrect because they are not part of the situational leadership model.

### **27.3: Which of the following relate to Leadership Traits outlined in table 27.2? (PMT2ed p.336)**

- a. Leadership vision.
- b. Leadership charisma.
- c. Communication skills.
- d. Command and control leadership.

**27.3 Answer:** A, B and C are correct. These are three of the key leadership traits that are generally listed as being related to project leadership. D is incorrect as the command and control style of leadership might have been successful in the past but, in today's working environment, more interactive methods are preferred.

### **27.4: Which of the following relate to the Project Manager's Responsibility-Authority gap? (Figure 27.2) (PMT2ed p.337)**

- a. The project manager's responsibility exceeds the assigned authority to use company resources.
- b. The project manager's authority exceeds the assigned responsibility.
- c. The project manager has limited authority to use company resources.
- d. The project manager has limited responsibility to use company resources.

**27.4 Answer:** A and C are correct. The responsibility-authority gap occurs when the project manager's responsibility to deliver the project exceeds the assigned authority to use company resources, expend funds, make decisions, or give approvals. B is incorrect as the responsibility-authority gap is the other way round – responsibility exceeding authority. D is incorrect as it is assigned authority that enables the project manager to use company resources not assigned responsibility.

### **27.5: Which of the following relates to Leadership Power? (PMT2ed p.337)**

- a. Power walking inspection of the project enables the project manager to observe the whole project very quickly.
- b. Position power is automatically conferred on the project manager with the appointment to the project.
- c. If project managers' are wealthy this will enable them to impose financial power over the project.
- d. A power nap, particularly when the project manager is working shifts.

**27.5 Answer:** B is correct. Project leadership power refers to the project manager's ability to get the job done through the project team and project participants. There are a number of different types of leadership power; formal authority, budget authority, coercive power, information power and personal power. A is incorrect as power walking is not related to leadership power. C is incorrect as project managers' wealth is not related to their level of leadership power. D is incorrect as a power nap does not relate to a project manager's ability to influence team members.

**27.6: Who developed Action-Centred Leadership? (PMT2ed p.338)**

- a. Abraham Maslow
- b. John Adair
- c. Henri Gantt
- d. David Easton

**27.6 Answer:** B is correct, John Adair.

**27.7: Which of the following from Herzberg's Motivating Factors relate to project work? (Figure 27.5) (PMT2ed p.342)**

- a. Personal growth.
- b. Sense of achievement.
- c. Responsibility.
- d. Working conditions.

**27.7 Answer:** B and C are correct. Herzberg's five motivating factors in the order the factors were reported are; sense of achievement, recognition of ability, interesting work, responsibility and promotion. A is incorrect because it is not part of the list. D is incorrect as this is a hygiene factor.

**27.8: Which of the following from Maslow's are Hierarchy of Needs relate to project work? (Figure 27.6) (PMT2ed p.344)**

- a. The project addresses the corporate needs outlined in the business case.
- b. The hygiene factors are a lower order need.
- c. Self-esteem needs.
- d. Self-actualization needs.

**27.8 Answer:** C and D are correct. Maslow's five levels of needs are; physiological needs, safety needs, social needs, self-esteem needs and self-actualization needs. A is incorrect as the project needs are not related to the business case of corporate needs. B is incorrect as hygiene factors are not part of Maslow's hierarchy of needs.

**27.9: Which of the following relate to the control of Interpersonal Conflict as outlined in table 27.5? (PMT2ed p.345)**

- a. Avoid conflict by avoiding the situation causing the conflict.
- b. The storming phase of the team development phases reduces the level of interpersonal conflict.
- c. Confront conflict by identifying and addressing the causes.
- d. The increasing use of computer processing is increasing the level of interpersonal conflict.

**27.9 Answer:** A and C are correct. Avoiding and confronting conflict are two of the methods outlined in table 27.5. B is incorrect as the storming phase usually increases the level of interpersonal conflict. D is incorrect as interpersonal conflict is between people and not between a person and a computer.

**27.10: Which of the following are acknowledged methods of Delegating project work? (PMT2ed p.346)**

- a. The project manager should develop a detailed delegation plan for delegating work to team members.
- b. The project manager should establish clear lines of authority and responsibility and ensure that they are understood by all.

c. The project manager should monitor performance and provide frequent feedback on the team members' performance and guide them where necessary.

d. The project manager should punish team members that makes a mistake. This will ensure that they do not do it again.

**27.10 Answer:** A, B and C are correct. Delegation should not be an ad hoc occurrence as and when the project manager feels overloaded. It should rather be a well thought out delegation process. D is incorrect as it is always difficult to know what to do when subordinates make a mistake. Punishment is usually considered as counterproductive as the team members might be reluctant to use their initiative in the future for fear of making another mistake and getting punished again.

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## **PMT2ed, Chapter 28: Project Teams (PMT2ed p.348)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **28.1: Which of the following relate to the Purpose of a Project Team? (PMT2ed p.348)**

- a. To carry out work that needs more than one person to complete the project on time.
- b. A project team of more than seven people is able to join the local seven-a-side football league.
- c. The ideal team composition is for all the team members to be competent in the same area or discipline.
- d. Project teams are formed to bring together a set of complementary skills and talents so that the project will have all the available competencies required to complete the work.

**28.1 Answer:** A and D are correct. Project teams are formed to bring together a set of complementary skills and talents so that the project will have all the available competencies required to complete the work. B is incorrect as seven-a-side football is not related to a project. C is incorrect as the purpose of a project team is to bring together a range of complementary skills, abilities, knowledge and competencies.

### **28.2: Which of the following relates to the difference between a Project Team and a Project Group? (PMT2ed p.349)**

- a. The members of a project group interact with each other to generate ideas and solve problems.
- b. The members of a project team interact with each other to generate ideas and solve problems.
- c. Both a project team and a project group have the same number of communication links.
- d. A project team, through interaction, is able to lead itself without any input from the project manager.

**28.2 Answer:** B is correct. Managing Project Teams is one of the special project management techniques within the human resources knowledge area that enables the project manager to lead and manage multi-disciplined teams within the project management office (PMO). The key feature of a project team is that all team members work together to achieve the project objectives. Through interaction and collaboration the team strives to enhance its creativity, innovation, problem solving, decision-making, support and work performance. A project group, in many ways, is the opposite of a project team as it implies a collection of individuals who, although they might be working on the same project, do not necessarily interact with each. A is incorrect as one of the features of the project group configuration is that, at the individual level, they do not interact with each other. C is incorrect as there are more communication links in a project team than a project group. D is incorrect as the project team needs to be led by a project manager.

### **28.3: Which of the following relate to the Team Charter? (PMT2ed p.350)**

- a. A document that sets out the working relationships and agreed behaviours within a project team.
- b. The team charter gives the project team the authority to use company resources.
- c. The team charter means the team is certified to work on special projects.
- d. The team charter gives a project team an identity.

**28.3 Answer:** A and D are correct. A team charter is a document that is developed in a collective setting that clarifies team direction while establishing boundaries. It is developed early during the forming of the team. B is incorrect as it is the project charter that gives the project manager the authority to use company resources. C is incorrect as the team charter does not certify the members.

### **28.4: Which of the following relate to the Benefits of Small Project Teams? (PMT2ed p.348)**

- a. Small teams are more nimble and flexible.
- b. Because of a small team's close interaction members are able to tackle large projects.
- c. Because of a small team's close interaction members are able to solve a wide range of problems.

D. Small teams are able to make decisions quickly.

**28.4 Answer:** A and D are correct. Small teams of two to four members find it easier to agree and make decisions quickly. Statistically small teams are more satisfied working together and more cohesive, and there is less potential for impersonal conflict. B is incorrect as small teams simply do not have sufficient team members to take on a large project. C is incorrect as a small team would lack the depth of knowledge and range of skills to solve a wide range of problems.

**28.5: Which of the following relate to the Benefits of Large Project Teams?** (PMT2ed p.348)

- a. Large teams have efficient lines of communication that enables them to quickly share information and communicate with each other.
- b. The project team's range of abilities and depth of knowledge is directly proportional to the number of team members.
- c. Larger teams will have the resources to perform larger projects.
- d. Large team have more stable succession.

**28.5 Answer:** B, C and D are correct. The main benefits associated with large teams is that there are more hands available to perform the scope of work, together with a wider skills base and depth of knowledge. A large team means there are fewer disturbances when someone leaves the team and when someone new joins the team. A is incorrect as in large teams the number of communication channels increases exponentially.

**28.6: Which of the following relate to Team Development Phases?** (PMT2ed p.352)

- a. Forming.
- b. Caring.
- c. Norming.
- d. Performing

**28.6 Answer:** A, C and D are correct. Project teams typically pass through a number of phases. To this list could have been added the 'storming' phase. B is incorrect as it is not one of the four phases mentioned in the team development model.

**28.7: Which of the following relate to the Levels of Team Building?** (PMT2ed p.354)

- a. Level 1: The team members get to know each other.
- b. Level 2: The team members are assigned team roles.
- c. Level 3: The systems level is where cybernetics is used to study cognitive behaviour and how team members interact with each other.
- d. Level 4: The team member exercises are task focused drills and exercises aimed at improving the efficiency of the team.

**28.7 Answer:** A, B and C are correct. Team building can be subdivided into four levels of development. At level 1, team building techniques are used to encourage the members to get to know each other. At level 2, this is the time to start developing the concept of team roles. At level 3, the project team use team building techniques to converge on an agreed set of objectives. At level 4, the team building techniques are focused on using practice drills to improve working together more efficiently to achieve the project objectives. C is incorrect as level 3 focuses on the team agreeing to a shared vision not an analysis of its behaviour.

**28.8: Which of the following relate to Team Building Techniques?** (PMT2ed p.355)

- a. Outdoor team building using running the London marathon as the team building vehicle.
- b. Outdoor team building using sailing or mountaineering as the team building vehicle.
- c. Indoor team building using brainstorming techniques.
- d. Work focused team building using discipline specific training, such as fire drill for the fire brigade.

**28.8 Answer:** B, C and D are correct. Team building techniques offer the project manager a dynamic process for improving the project team's performance. The outdoor environment provides an ideal situation for level 1, 2 and 3 team building, where people can get to know each other, practise their team roles without the distraction of work, and develop problem solving and decision-making processes. Brainstorming techniques can be used not just to generate a flood of innovative ideas but also to help the team converge on an optimum set of



objectives. Fire drills are a good example of a team working together so that when the members arrive at a fire they all know what to do and are up and running very quickly. A is incorrect as the situation the answer outlines is not a team effort. However, if the answer had included the support crew, obtaining sponsorship for a good cause, the marathon becomes part of a team building effort.

**28.9: Which of the following relate to Team Synergy? (PMT2ed p.356)**

- a. Brainstorming.
- b. Synergy is often expressed as  $2+2=5$ .
- c. Synergy is often expressed as  $2+2=4$ .
- d. Synergy is often expressed as  $2+2=3$ .

**28.9 Answer:** A and B are correct. Brainstorming is an idea generating technique that relies on the positive interaction between the members where an idea is put forward by one member, which triggers another idea from another member and so. Synergy is often expressed as  $2+2=5$  to imply that by working together project team members can produce more than if they work on their own.

**28.10: Which of the following relate to the Benefits of using Project Teams? (PMT2ed p.356)**

- a. Project teams achieve team synergy.
- b. Succession planning.
- c. Project teams can exhibit mutually exclusive qualities and abilities.
- d. Project teams enable the members to pursue their individual careers.

**28.10 Answer:** A, B and C are correct. In the project context, synergy is the ability of a team to outperform even its best individual member. Succession planning enables project teams to continue to perform as team members come and go. A developed team should collectively be able to present a range of complementary skills; forceful but also sensitive to other people's feelings, decisive but also reflective. D is incorrect as one of the benefits of a team is to work together to achieve common objectives.

## **PMT2ed, Chapter 29: Project Organization Structures (PMT2ed p.358)**

The following questions have been designed to test your knowledge of the chapter and prompt discussion. Please note that each question could have one or more correct answer.

### **29.1: Which of the following relate to a Project Organization Structure? (PMT2ed p.359)**

- a. A temporary organization structure.
- b. One of the special project management techniques within the human resource knowledge area that enables the project manager to lead and manage a multidiscipline project organization.
- c. A permanent organization structure to manage the design and manufacture of the project.
- d. A permanent organization structure designed to manage the operation of the project.

**29.1 Answer:** A and B are correct. A project organization structure is a temporary organization structure that is set up specially to perform a project, often a multi-disciplined project, as outlined in project charter, and then disbanded when the project is completed. C is incorrect as a project organization structure is temporary. D is incorrect as the project organization structure does not manage the operation of the project after the project is completed.

### **29.2: Which of the following different Types of Organization Structure are suitable for managing projects? (PMT2ed p.360)**

- a. Functional organization structure.
- b. Matrix organization structure.
- c. Pure project organization structure.
- d. Pure matrix organization structure.

**29.2 Answer:** A, B and C are correct. Projects can be managed through a range of organization structures. The functional organization structure is suitable for managing projects within its specialized field. The matrix organization structure offers a more flexible integration of the project and the functional needs by overlaying the project structure over the functional structure, thus giving the best of both worlds. The pure project organization structure is dedicated to run one project, usually a capital project, often in a remote location. D is incorrect as this term is not used to describe any of the key organization structures.

### **29.3: Which of the following outline the level of Authority a project manager has in a Functional Organization Structure? (PMT2ed p.361)**

- a. No authority.
- b. Limited authority.
- c. Shared equally with the functional manager.
- d. High level of authority.

**29.3 Answer:** B is correct. In a functional organization structure the project manager will work for the functional manager. In this situation the project manager's authority will be controlled by the functional manager and, therefore, is likely to be limited. A is incorrect as the project manager will almost certainly have some authority. C is incorrect as the project manager is unlikely to share authority equally with the functional manager (shared authority is associated with a matrix organization structure). D is incorrect as the project manager is unlikely to have a high level of authority at the expense of the functional manager he is working for.

### **29.4: Which of the following highlight some of the Advantages inherent with performing a project within a Functional Organization Structure? (Figure 29.3) (PMT2ed p.361)**

- a. Functional departments provide excellent technical support for the work carried out within the department.
- b. There is quick reaction time to problems within the department.
- c. The project can draw on the entire resources of the company. When several projects are operating concurrently, the functional organization structure allows a time-share of expertise, which should lead to a higher degree of resource utilization.
- d. The functional organization structure is ideal for multi-disciplined projects.

**29.4 Answer:** A and B are correct. The big advantage of using a functional organization structure is associated with single disciplined projects within the department where there is the technical expertise and fast lines of communication. C is incorrect as this resource sharing arrangement is performed through a matrix organization structure. D is incorrect as functional organization structures struggle to manage multi-disciplined projects as the project moves from department to department.

**29.5: Which of the following highlight some of the Disadvantages inherent with performing a project within a Functional Organization Structure?** (Figure 29.2) (PMT2ed p.361)

- a. Lines of communication within the department tend to be long and not well established.
- b. If the project moves from department to department then there will be no single point of responsibility
- c. There will be a two boss situation, which could lead to a conflict of requirements.
- d. The functional organization structure is the most expensive organization structure to operate.

**29.5 Answer:** B and C are correct. The disadvantages with the functional organization structure tend to be associated with the unclear single point of authority; this is a particular problem with multi-disciplined projects. A is incorrect as the lines of communication within a functional organization structure tend to be short, well established and in-house. D is incorrect as the functional organization structure is generally considered to be less expensive to operate than the matrix organization structure.

**29.6: What are the different types of Matrix Organization Structure?** (PMT2ed p.363)

- a. Weak matrix organization structure.
- b. Balanced matrix organization structure.
- c. Pure matrix organization structure.
- d. Strong matrix organization structure.

**29.6 Answer:** A, B and D are correct. There are three types of matrix organization structure; weak where the project manager has limited authority; balanced where the project manager shares the authority with the functional managers; and strong where the project manager is primarily responsible for the project and functional resources are seconded as required. C is incorrect as 'pure' is not used in the context of a matrix organization structure. It is only used to describe the pure organization structure.

**29.7: Which of the following highlight some of the Advantages inherent with performing a project within a Matrix Organization Structure?** (Figure 29.3) (PMT2ed p.363)

- a. The project manager is the single point of responsibility.
- b. The matrix structure is simple and easy to operate.
- c. The two boss situation (project manager and functional manager) means the workforce can benefit from the opinion of two different experts.
- d. Equipment can be shared between projects thus the capital cost can be shared between projects.

**29.7 Answer:** A and D are correct. The matrix organization structure ensures the project manager is the single point of responsibility and enables the project to use companywide resources and equipment. B is incorrect as the matrix organization structure is generally considered to be confusing and complicated to people new to project management. C is incorrect as the two boss situation is generally considered to be a recipe for conflict.

**29.8: Which of the following highlight some of the Problems inherent with performing a project within a Matrix Organization Structure?** (Figure 29.4) (PMT2ed p.363)

- a. It is complex.
- b. There is dual responsibility leading to a two boss situation.
- c. The departments involved with the project will be reluctant to share their equipment with the project.
- d. The matrix organization structure is disbanded when the project is terminated.

**29.8 Answer:** A and C are correct. The topology of the matrix organization structure consists of horizontal lines of project responsibility and authority overlaid on vertical lines of functional responsibility and authority. People new to working on projects find this configuration complex. This arrangement also leads to the classic two boss situation where a worker could be receiving instructions from the project manager and functional manager. C is incorrect because, with the matrix organization structure, the functional departments will depend on the projects for their existence, so withholding their equipment and resources will be counter-productive. D is incorrect as the matrix organization structure is seen as a benefit because it is set up to reflect the needs of the project and is disbanded when the project is complete, therefore, not incurring the parent company with any ongoing overhead costs.

**29.9: Which of the following highlight Advantages inherent with performing a project within a Pure Project Organization Structure? (PMT2ed p.365)**

- a. Sharing resources with other departments in the company.
- b. The project manager has full authority over all of the project's activities.
- c. All the resources work for the project, there is no sharing of resources with other departments.
- d. The company can offer continuing employment as the pure project organization moves from project to project.

**29.9 Answer:** B and C are correct. The project manager has full authority over all aspects of the project and does not have to negotiate with any other parts of the company for resources or equipment. A is incorrect as the pure project organization structure is usually an autonomous structure that works independently to other department in the company. D is incorrect as the pure project organization structure might be set up specifically to make the project and then disbanded so it will not be able to offer long term employment.

**29.10: Which of the following highlight Problems inherent with the Pure Project Organization Structure? (PMT2ed p.365)**

- a. Duplication of effort and an inefficient use of company resources.
- b. Propensity to stockpile equipment and keep hold of personnel.
- c. The project manager has to share authority with the functional managers.
- d. The resources might experience the two boss situation where they are working for both the functional manager and the project manager.

**29.10 Answer:** A and B are correct. If the parent company has a number of projects running concurrently, with pure project structures this could lead to a duplication of effort in many areas and an inefficient use of company resources. To ensure access to technical know-how and skills there might be a propensity to stockpile equipment and keep hold of personnel, which might lead to resources being assigned to the project longer than required. C is incorrect as the project manager works independently to the functional managers and, therefore, they do not share authority. D is incorrect as, in the pure project organization structure, all the workforce work solely for the project; so there is no sharing of resources and, therefore, no two boss situation.