

1. Define project risk and risk management.
 - a. Project risk refers to the potential for events or circumstances to negatively impact a project's outcome or objectives. Risk management is the process of identifying, assessing, and prioritizing risks, and implementing strategies to mitigate or avoid them. Risk management is critical to project success because it helps project managers identify potential issues before they occur, develop plans to address them, and allocate resources appropriately to ensure that the project is completed on time and within budget.
2. Briefly define the four key stages of risk management.
 - a. The four key stages of risk management are: risk identification, analysis of probability and consequences, risk mitigation strategies, and risk documenting and control. In the risk identification stage, project managers identify potential risks and document them. In the analysis of probability and consequences stage, project managers analyze the likelihood and potential impact of each risk. In the risk mitigation strategies stage, project managers develop strategies to mitigate or avoid identified risks. In the risk documenting and control stage, project managers track risks throughout the project and adjust risk management strategies as needed.
3. In the text, the risk identification stage may identify various types of risk. Pick any two to define and provide an example of.
 - a. Two of the risks mentioned in the text are financial risk and technical risk.

Financial risk refers to the potential for a project to experience financial losses or negative impacts on its financial performance. This type of risk can arise from various factors, such as cost overruns, revenue shortfalls, unexpected expenses, or economic factors that affect the project's financial viability. For example, a construction project may face financial risk due to rising costs of raw materials, a delay in obtaining necessary permits, or a drop in demand for the type of building being constructed.

- b. Technical risk, on the other hand, refers to the potential for a project to encounter technical difficulties that could impact its ability to meet project requirements or deliverables. This type of risk can arise from various sources, such as technological limitations, incomplete or inaccurate technical specifications, or inadequate resources or expertise. For instance, a software development project may face technical risk if the project team lacks the necessary skills to develop the required software or if there are compatibility issues with other software or hardware systems.
4. There are four risk mitigation strategies. Briefly define them.
 - a. The four risk mitigation strategies are: risk avoidance, risk reduction, risk sharing, and risk acceptance. Risk avoidance involves taking steps to eliminate a risk altogether. Risk reduction involves taking steps to reduce the likelihood or impact of a risk. Risk sharing involves shifting the responsibility for a risk to another party, such as an insurance company. Risk acceptance involves accepting the potential impact of a risk and planning accordingly.
5. Define cost estimation. Describe why it is important in the project management process.
 - a. Cost estimation is the process of estimating the costs associated with completing a project. It is important in the project management process because accurate cost estimates are necessary to ensure that the project can be completed within budget. Cost estimation typically involves considering factors such as labor, materials, and equipment costs, as well as any indirect costs associated with the project, such as overhead and administrative costs.
6. List the common sources of project costs. There are five. (no need to define them!)
 - a. The common sources of project costs are: labor, materials, equipment, subcontractors, and travel. Labor costs include wages, salaries, and benefits for project team members. Materials costs include the cost of any physical items needed for the project, such as supplies or raw materials. Equipment costs include the cost of any machinery or tools required for the project. Subcontractor costs include people or companies the project team will collaborate with that must be

paid, therefore included in the project cost. Travel cost includes things such as flights, cars, hotels, etc.

7. Compare and contrast direct and indirect costs. Secondly, compare and contrast fixed and variable costs.
 - a. Direct costs are costs that can be directly attributed to the project, such as labor or materials costs. Indirect costs are costs that are not directly attributable to the project, such as administrative or overhead costs. Fixed costs are costs that do not change regardless of the project's output, such as rent or salaries. Variable costs are costs that change based on the project's output, such as materials or labor costs.
8. What is a parametric cost estimate and how does it differ from an analogous estimate?
 - a. A parametric cost estimate is an estimate that is based on statistical data from past projects, such as cost per unit of output or cost per hour of labor. An analogous estimate is an estimate that is based on similar past projects. The difference between the two is that parametric estimates are more precise and require more detailed data, while analogous estimates are more general and rely on less data.
9. What is a learning curve and why is it important?
 - a. A learning curve is a graphical representation of the relationship between time and efficiency. As workers gain experience with a particular task or process, they become more efficient and can complete the task more quickly. Learning curves are important in cost estimation because they can help project managers accurately estimate labor costs over time.
10. What are some reasons why developing an accurate cost estimate can be difficult?
 - a. Developing an accurate cost estimate can be difficult for several reasons, including uncertainty around project requirements, changes in market conditions or government regulations, and unexpected delays or issues that arise during the project. Additionally, cost estimates may be impacted by inaccurate or incomplete data, or by changes in resource availability or pricing.
11. Compare and contrast top-down and bottoms-up budgeting.

- a. Top-down budgeting involves developing an overall budget for the project and then breaking it down into individual tasks or components. Bottoms-up budgeting involves starting with individual tasks or components and then aggregating them to create an overall budget. Top-down budgeting can be faster and easier to implement, but may result in less accurate estimates. Bottoms-up budgeting can be more accurate but may require more time and resources to implement.

12. Define activity-based costing.

- a. Activity-based costing is a cost accounting method that identifies and assigns costs to specific activities or tasks within a project. This approach allows project managers to more accurately estimate costs based on the resources required to complete each task. Activity-based costing can help project managers identify areas where costs can be reduced, and can also provide a more accurate basis for estimating future projects.