

Unit 1 Theory: (incomplete)

1. Define Problem solving and Decision making with examples.
2. Examine the different approaches to economic problem solving and decision-making process through scientific method.
3. Distinguish between:
 - a. Tactics and Strategy
 - b. intuition and analysis
 - c. Nominal rate of interest and effective rate of interest
 - d. Arithmetic gradient and geometric gradient.
4. Explain the three regularly encountered perspectives that lead to sub-optimization.
5. Describe the necessary conditions for present worth comparison.
6. Discuss the various methods to compare present worths of assets with unequal lives.
7. How is macroeconomics different from micro economics? Explain the significance of them in engineering economy.

Unit 1 Derivations & Formulae: (incomplete)

1. Derive the compound interest factor for series of annual payments.
2. **Derive the formula for capital recovery factor (uniform series). Firstly derive $F = P(1 + i)^n$ and then proceed.**
3. **What is meant by continuous cash flow? Obtain an expression to calculate the continuous-compounding series compound-amount factor for continuous uniform payments.**
4. **Derive an equivalent annual payment equation that includes the salvage value.**

Unit 2:

Examine various conditions for comparison of present worth of various solutions?
Examine the present worth by the 72 rule ?

State the various methods by which Assets are compared of unequal lives?

Explain the various conditions for comparison of present worth of various solutions?
Distinguish between service life, accounting life and economic life of an asset.

State the various methods by which Assets are compared on unequal lives?

Compare:

- i. going value v/s liquidating value of an asset
- ii. book value v/s market value.

Derive an equivalent annual payment equation that includes the salvage value. Also explain the mechanism of bond valuation and stock valuation.

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Compare:

going value v/s liquidating value of an asset
book value v/s market value.

Derive an equivalent annual payment equation that includes the salvage value.
Describe the mechanism of bond valuation and stock valuation.

Discuss the following:

Ownership life
Account life
Economic life.

Discuss the usage of a sinking fund.

Derive an equivalent annual payment equation that includes the salvage value. Also explain the mechanism of bond valuation and stock valuation.

Discuss the term used to describe the life of an asset.

Unit 3:

1. What is meant by rate of return? Define the various rates of return.
2. Why is it not practical to have a single interest rate for the entire economy?
3. Explain why discounted cash flow techniques provide better criteria for project selection than net profit or return on investment.
4. Illustrate any two economic comparison methods with suitable example.
5. Distinguish between:
 - a. Minimum acceptable rate of return and Internal rate of Return
6. State the terms IRR, MARR and ERR and constant value of dollars?
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7. What is a project? Explain the various project attributes. (10)
8. Describe the various project phases and the project life cycle. (10)
9. With a neat diagram explain the project life cycle curves with examples.
10. Identify the ten specific skills required to be a successful project manager. (10)
11. Discuss the project management knowledge Areas?
12. What are the factors that help in projects to succeed? Discuss the various project stakeholders?
13. What is the process for identifying potential IT projects? Discuss the methods for selecting projects.
14. Discuss the roles of program manager, project manager and project portfolio management?
15. Describe the objectives of activity planning in project management.
16. Identify the main differences between managing the development of a conventional project and an outsourced project.
17. Distinguish between:
 - a. Project and Program. (2)
 - b. Project life cycle and deliverables
18. What is project Charter? Explain the inputs, tools, techniques and contents of project charters.

19. Explain the four frames of organization. (06)

Unit 4:

1. List the objectives of cost estimation in project management.
2. How significant is the cost estimation in project management? Explain.
3. Identify the various steps in project cost estimation.
4. Explain various types of cost estimates? Examine typical problems with Information Technology cost estimates?
5. Examine the basic principles of cost management?
6. Analyze the importance of work breakdown structure in project management.
7. Describe the different ways to develop a work breakdown structure (WBS) and explain why it is difficult to do so.
8. Explain the following schedule development techniques:
 - a. i) PERT
 - b. ii) critical chain scheduling.
9. Analyze why schedule issues often cause the most conflicts on projects and describe the main processes involved in project time management.
10. What is the difference between the Control Quality and Manage Quality processes? Explain the factors considered in the process.
11. Discuss Project monitoring and controlling and change controlling system?
12. Deliberate on the various processes involved in scope management?
13. Explain how earned value management (EVM) can be used to measure project performance.
14. Illustrate the principles used to create a good WBS and its dictionary.
15. Describe the capers jones rules for estimation of projects.
16. Give the need of software estimation. Discuss the different types of cost estimates.
17. Explain the major activities carried out by a software project manager and the order in which these are carried out.
18. Explain in detail the systemic view of project management process.

Unit 5:

1. Distinguish and explain the differences between software quality assurance and quality control.
2. Identify software quality metrics available during software development with suitable examples.
3. What are the main considerations affecting the use of the SQA components. Give examples.
4. What is quality planning? Discuss the important scope aspects of IT projects that affect quality.
5. Describe the various tools and techniques for quality control with an example. How is 6-Sigma quality control unique?
6. Differentiate between the types of SQA system component classes with examples.
7. Elucidate the principles embodied in the Capability Maturity Model (CMMI).
8. Under what conditions do the Project Quality Management processes need to be used on a project? Substantiate with an example.
9. Explain the commonly involved risks in project management with illustrations.
10. Define risk management. Explain the steps involved in it with examples.
11. What is risk management? Explain the functions of risk mitigation council.
12. Examine Qualitative risk analysis and Quantitative risk analysis.
13. Elaborate on general Risk mitigation strategies for technical, cost and schedule risks?
14. Discuss the six main processes and all of the deliverables associated with project risk management.
15. What are the topics addressed in a risk management plan? Describe the categories of risks faced by organizations.
16. Discuss the different software project risks and strategies used for risk reduction.

17. How can project communications be improved? (04)
18. Bring out the importance of project communication management. Discuss the various issues in communication planning.
19. Describe the factors need to be considered for allocating the tasks to individuals in project management.
20. Elaborate on guidelines for use communication tools and collaborative tools effectively in a project.
21. Discuss communication modes employed to resolve conflict in an project? (06)
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