(2½ Hours)

[Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
　　　(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
　　　(3) Answers to the **same question** must be **written together**.
　　　(4) Numbers to the **right** indicate **marks**.
　　　(5) Draw **neat labeled diagrams** wherever **necessary**.
　　　(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt _any three_ of the following:**　　　　　　　　　　　　　　　　　　15
a. What is a project? What are its characteristics?
b. State and Explain phases of Project Management Life Cycle.
c. What do you mean by Project portfolio management? What are its elements?
d. How do you perform Cost benefit analysis (CBA)?
e. Draw the diagram of Step Wise approach to planning software projects and explain step 1: Establish project scope and objectives in detail.
f. Consider the project cash flow estimates for four projects as shown in the table; Negative levels represent expenditure and positive values income. Rank the four projects in order of financial desirability and make a note of your reasons for ranking them in that way. Conclusion should be based on Net profit, and ROI (Return on Investment)

Year	Project 1	Project 2	Project 3	Project 4
0	-100000	-100000	-1000000	-120000
1	20000	20000	300000	30000
2	30000	30000	300000	30000
3	10000	20000	300000	30000
4	20000	20000	300000	30000
5	20000	30000	300000	50000
Net Profit	?	?	?	?
ROI	?	?	?	?

2. **Attempt _any three_ of the following:**　　　　　　　　　　　　　　　　　　15
a. What is Atern/Dynamic Systems Development Method? What are its eight core principles?
b. What are the Capers Jones Estimating Rules of Thumb?
c. Explain Water fall Model with the help of diagram.
d. Explain Scrum. What do you understand by the term 'ceremonies' in a Scrum project?
e. Discuss the common problem faced during effort estimation.
f. Write a short note on Albrecht Function Point/IFPUG.

3. **Attempt _any three_ of the following:**　　　　　　　　　　　　　　　　　　15
a. Differentiate between PERT (Program Evaluation Review Techniques) and CPM (Critical Path Method).
b. Define Risk Management. Explain the different Categories of risk.
c. State and describe the Burman's priority list in project management.
d. What are the Boehm's top 10 development risks?

[*Turn over…*

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e. Draw CPM and Determine the critical path, the critical activities and the project completion time. for the following activities.

Activity	Predecessor Activity	Duration (Weeks)
A	-	3
B	A	5
C	A	7
D	B	10
E	C	5
F	D,E	4

f. Draw PERT network using precedence network conventions for the project in table. Also show stepwise activities of forward pass and backward pass.

Activity	Duration	Precedents
A	6	-
B	4	-
C	3	A
D	4	B
E	4	B
F	10	-
G	3	E,F
H	2	C,D

4.   Attempt _any three_ of the following:

a. Define the any three terms following: i) Scheduling Variance ii) Cost Variance   **15**
    iii) Earned Value iv) Schedule performance index v) Cost performance index
b. What is Contract? Explain the advantages and disadvantages of fixed price contracts.
c. Explain general recruitment process.
d. Discuss the factors of job satisfaction given by Oldham-Hackman. Also state the methods of improving motivation.
e. What is Stress? Explain stress management.
f. Describe the Ethical and Professional concern.

5.   Attempt _any three_ of the following:

a. What are the different types of Team Structure?   **15**
b. What is CMM (Capability Maturity Model)? What are the various levels of CMM?
c. What is ISO standard? What are the sub-characteristics of Functionality and Reliability of ISO 9126 software qualities?
d. What are the five basic stages of Team Development?
e. What is Testing? Explain Test plan and Test management.
f. What do you mean by Premature Termination? What are the reasons for projects premature termination?

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