(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. Define project. Describe the project management life cycle with the help of diagram and state the W5HH principle.
b. What is project product? Explain the product breakdown structure with the help of example.
c. Define Business Case. Explain business case document in detail.
d. How to evaluate and manage risk in software project management? Explain.
e. Describe the main steps of step wise approach to planning software projects overview with help of diagram.
f. Suppose a software development company has undertaken a project that is expected to cost £190,000 to execute and the expected inflow is £25,000 per quarter for the first year, £30,000 per quarter thereafter. What is the payback period for the project?

2. Attempt *any three* of the following: **15**

a. Describe the spiral model with the help of diagram and give the advantages and disadvantages of it.
b. Define Atern/Dynamic Systems Development Method. State and explain eight core principles of it.
c. Explain briefly Albrecht/IFPUG function point and solve the following: For a organization, the following table summarizes the weightings to be used for computing function points measures of a software having the following characteristics : Number of user inputs : 10 (simple), Number of user outputs : 7 (simple), Number of user enquires : 3 (average) , Number of files : 6 (average), Number of External interfaces : 1 (complex), Calculate unadjusted function point measures of the size of the software system?
d. Discuss Agile and Scrum as a fast delivery approach of a project in detail.
e. Describe the COCOMO II and discuss its stages.
f. Describe the Capers Jones estimating rules of thumb with the help of relevant examples.

3. Attempt *any three* of the following: **15**

a. Describe the nature of resources and their scheduling.
b. List and Describe Bohem's top ten software project risks and the different strategies for reducing it.
c. Explain the concept of forward pass, backward pass, and critical path.
d. Distinguish between PERT and CPM.

[*Contd…*

e. Suppose four risks namely R1, R2, R3 and R4 have been identified and assigned the probabilities of occurrence of 0.1, 0.2, 0.3 and 0.4 respectively. The likely damages due to the four risks are Rs. 60,000; Rs. 1,00,000; Rs. 70,000; Rs. 80,000 respectively. Calculate the risk exposure of all the risks.

f. Create a precedence activity network using the following details:

Activity	Depends on	Duration (days)
A		5
B	A	7
C	B	6
D	A	5
E	D	10
F	B	15
G	B	8
H	G	8
I	C	4
J	G	4
K	E,F	7
L	I,H	5

Calculate the earliest and latest start and end dates and the float associated with each activity. From this identify the critical path.

4. Attempt *any three* of the following:

a. Define Contract. Explain fixed price contract with its' advantages and disadvantages. **15**

b. Describe Vroom's expectancy theory of motivation.

c. Describe three important categories of stress management techniques.

d. How to control the change? Explain the change control process.

e. Describe the ethical and professional concerns as a member of any organization.

f. Suppose a project is budgeted to cost $150,000. The project is to be completed in 20 months. After two months, the project is 10% complete at an expense of £25,000. It was planned that after 2 months, 15% of the project work should have been completed. Compute the cost performance index and the schedule performance index. Interpret these values to assess the progress of the project.

5. Attempt *any three* of the following:

a. Explain five basic stages of Team development. Also state the different types of people needed to form a balanced team. **15**

b. "Student fails in the project, if the projects are not closed properly". Justify this statement.

c. What is Testing? Give a brief explanation of the main activities involved in Software Testing.

d. What is the importance of Software quality? Discuss six major external software quality characteristics identified by ISO 9126.

e. Discuss reasons for project closure.

f. Explain CMM (Capability Maturity Model) with it's the various levels.