BE6-R3: SOFTWARE PROJECT MANAGEMENT

NOTE:

1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours **Total Marks: 100**

1.

a) Discuss usability of a software application as a non-functional requirement in an SDLC?

b) Explain the terms constraints- time, cost and scope in software project management?

c) Compare COCOMO and PERT as estimation techniques?

d) "Embedded systems development demands a lifecycle management system that is flexible and nimble and processes that support an environment where: Business priorities and requirements change in real time", Explain briefly.

e) Who are the important stakeholders in software projects? Identify.

f) Do you agree with the statement that an easy and useful way to estimate software efforts and costs is to estimate the lines of code of the software?

g) When would you use laddering in a network diagram? Explain it with some suitable example?

(7x4)

2.

a) Why is it necessary to plan software projects? What are the broad activities that encompass software project planning? List the steps involved in detailed planning?

b) What is work breakdown structure? What is responsibility matrix? How are they related?

(10+8)

3.

a) What do you mean by risks in software projects? How does risk management tackle these risks? What procedure is usually followed?

b) What are the different types of risks in software projects?

c) What are the different risk assessment activities? Discuss anyone of them.

(9+4+5)

4.

a) A New project with estimated 400 KLOC embedded system has to be developed. Project manager has a choice of hiring from two pools of developers: Very highly capable with very little experience in the programming language being used or developers of low quality but a lot of experience with the programming language. What is the impact of hiring all developer from one or the other pool?

b) What is the aim of project closure analysis? Who participate in this analysis? What is the outcome of this analysis? How are the analysis results useful?

(10+8)

5. A project consists of 12 activities and their times estimates are shown below. Activities are identified by their beginning (*i*) and ending (*j*) node numbers.

Activity		Estimated Duration (weeks)		
i	j	Optimistic	Most Likely	Pessimistic
1	2	4	6	10
1	3	3	7	12
1	4	5	6	9
1	7	2	4	6
2	4	6	10	20
2	6	3	4	7
2	7	5	9	15
3	4	3	7	12
4	5	2	4	5
5	6	1	3	6
3	7	2	5	8
6	7	1	2	6

a) Draw the network diagram?
b) Determine the Critical Path?
c) Calculate event slacks and activity floats?
d) Find the standard deviation of the critical path duration?

(6+6+3+3)

6.
a) Compare and contrast between COCOMO and Function point model of software sizing.
b) A software project, to be developed using 'JAVA' is estimated at 400 Function Points. If a software engineer costs Rs. 60,000 per month, find out an estimate of the cost and time for developing the software. Also, estimate the number of software engineers required. For software projects developed using JAVA, assume 1 function point equal to 40 lines of code.
c) Discuss, how improvements of software economics can be brought about with object-oriented software development.

(6+8+4)

7.
a) Name the different software process models. Bring out a comparision of these process models.
b) "Role of a software manager is crucial for the success of a project." Justify.
c) Discuss any one metrics that may be used to monitor and control the project completion.

(8+6+4)