CE1.4-R4: PROJECT MANAGEMENT

NOTE:

> 1. Answer question 1 and any FOUR from questions 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)   What do you mean by Software Project Management? Explain the activities which is to be performed in Software Project Management.
b)   Enlist and explain various metrics for measuring Reliability and Quality of Software Products.
c)   What is change control and version control? How it is related with Software Configuration Management?
d)   What is difference between Reliability and Quality? Justify the statement "highly reliable software can be termed as a good quality software".
e)   Which are various activities and actions carried out by Software Project Manager in last phase of Software Project Management life cycle?
f)   What does Halstead's length and volume metric represent conceptually? How according to Halstead is the effort dependent on program volume?
g)   Explain and compare Resource smoothing and Resource leveling as approaches to resource scheduling.

                                                                                (7x4)

2.
a)   With the help of examples discuss the types of Software Organization to which ISO9001, ISO9002, ISO9003 standards are respectively applicable.
b)   Discuss the tools and techniques that project managers can use to ensure knowledge and lessons learned from previous projects are not lost, and can be shared for the benefit of future projects.
c)   Differentiate between using network diagram, Gantt chart and PERT chart in managing software projects.

                                                                                (6+6+6)

3.
a)   How Quality is controlled? How it is differing from Quality Assurance? Explain difference between ISO 9000 certification for software industries and SEI-CMM Level certification.
b)   Using the information in below Table assuming that the project team will work a standard working week (5 days/week) and that all tasks will start as soon as possible:

Task	Description of Task	Duration (Working Days)	Predecessor
A	Requirement Analysis	5	
B	Design	15	A
C	Coding	25	B
D	Telecommunication	15	B
E	Hardware installation	30	B
F	Integration	10	C,D
G	System Testing	10	E,F
H	Training	5	G
I	Going Live	5	H

Determine the critical path of the project.
Calculate the planned duration of the project in weeks.
Identify any non-critical tasks and the float (free slack) on each.

                                                                                (6+12)

4.

a) Explain any three approaches / strategies which a Project Manager might consider when optimizing the resource allocation for a project. Take suitable assumptions.

b) Which are tools and techniques used to Estimate Cost of Project? What is Earn Value? What is significance of Cost Performance Index (CPI) and Schedule Performance Index (SPI) in Earn Value Management?

c) You are the leader of a new product development project. The project is roughly 50% complete. You have just received a report from your marketing department that your competitor is also launching a similar product and their product is almost ready for the launch. The company relies upon you for what to do in these circumstances? Make your recommendations. You may make necessary assumptions.

(8+5+5)

5.

a) How to perform Qualitative Risk Analysis and Quantitative Risk Analysis? Which are various tools / techniques to do Process of Risk Analysis and Monitoring and Controlling Risk in Project?

b) What are different categories of Software development projects according to COCOMO estimation model? Give example of software product development projects belonging to each of these categories. How to find effort and time of development for each category?

c) Why LOC is not enough for as Software metrics? Which types of attributes, characteristics and feature of Software considered by Function Point to overcome loop holes of LOC?

(6+6+6)

6.

a) Define 'Time overrun' and 'Cost overrun'. State the reasons for Time Overruns and Cost overrun. How Cost Variance (CV) and Schedule Variance (SV) will help you to find out Time overrun and Cost overrun?

b) Propose how the effective use of project management software can help an organization manage its projects throughout each stage of the project life cycle.

(6+12)

7.

a) Explain in brief the difference between PERT and CPM. Explain the circumstances under which one is preferred to other. Draw Network and Gantt diagrams from the relationship given in the table.

TABLE	
Activity	**Immediate Predecessor**
P	-
Q	P
R	P,Q
S	-
T	P,S

b) Which are various stake holders of any Project? How they are related to Project? What are their roles and responsibilities in project? Enlist stake holders required for development of Web site and application of banking sector.

(10+8)