Time: 3 HRS **Max. Marks: 80**

Question 1 is compulsory.

Attempt any three questions from Q.2 to Q. 6. Each question carries equal marks.

Q.1 a The following table indicates the various tasks involved in developing any product, the corresponding activities and the estimated duration (in days) for each task . **5**

Sr. No.	Task	Duration	Predecessor
1	Product idea brainstorming	10	-
2	Evaluate ideas	10	1
3	Market evaluation	10	2
4	Analysis	30	2,3
5	Prototype and marketing	90	4
6	Market testing	30	5
7	Prepare for launch	40	5,6

Show the **activity network diagram, critical path.**

b **Calculate Early finish, late finish and slack time** for each activity for project mentioned in Q.1 a. **5**

c Define project. Explain project life cycle **5**

d Draw the use case diagram for restaurant billing process. **5**

Q.2 a Explain incremental model in detail **10**

b A project size of 250 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project. . (a1 = 3.0, a2 = 1.12, b1 = 2.5, b2 = 0.35) **10**

Q 3 a Define requirements engineering. Explain any two requirements elicitation techniques.` **10**

Q.3 b Explain any two techniques used for software quality control with suitable example. **10**

Q. 4 a Consider the ERP application project with following features: **10**

i. The application has 5 screens with 2 views with 9 tables. (Complexity = 2)

ii. The application has 3 reports of 3 sections with 9 tables. ((Complexity = 5)

iii. The application has 3 3GL components. (Complexity = 10)

There is 30% reuse of object points.

The developers' experience and capability is HIGH in similar environment. Calculate the object point count, NOP, effort to develop such project. (PROD=25)

Q4 b Explain difference between: **10**

a) Incremental model and spiral model

b) Activity network diagram and WBS

Q. 5 a Explain project procurement management. **10**

b Consider a project with the following functional units: Number of user inputs = 40, Number of user outputs = 30, Number of user enquiries = 35, Number of user files = 08, Number of external interfaces = 03, Assume all complexity adjustment factors and weighting factors are average. Compute the function points for the project. **Constants:** complexity adjustment factors with average scale = 3, User Inputs (average = 4), user outputs (average = 5), user enquiries (average = 4), user files (average = 10), external interfaces (average= 7) 10 marks **10**

Q. 6 a Explain Formal Technical Review. State how it helps to improve quality of software development. **10**

b Explain feasibility analysis in detail. **10**
