[Time: - 2½ Hours] **[Marks: 75]**

Please check whether you have got the right question paper.

N.B: 1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Illustration in-depth answers and diagrams will be appreciated.
4. Mixing of sub-questions is not allowed.

1. Attempt the following **(Any Three)** 15
   A) State and explain the activities involved in project management process.
   B) Elaborate on - Project Manager plays important role in project development.
   C) Explain with suitable example Work Breakdown Structure (WBS). Also state the advantages of WBS.
   D) Explain in brief types of COCOMO Model. Also State advantages and disadvantages of COCOMO Model.
   E) State need and importance of Gantt chart and Pert Chart.
   F) Calculate the function point value for project having details as follows:
      Internal logical files(ILFs) = 20, External interface files(EIFs) = 10, External Inputs (Els) = 5, External Outputs = 7, External Inquiries = 8 with the help of following table for average function type. Assume that the degree of influence is moderate i.e 2 for all factors.

Function Type	Simple	Average	Complex
External Inputs	2	4	6
External Outputs	3	3	7
Internal logical files	5	10	10
External interface files	3	5	6
External Inquiries	3	6	5

2. Attempt the following **(Any Three)** 15
   A) What is Risk Management? State need of Risk Management. Also state and Explain different types of Risk Associated in Project development.
   B) Explain Configuration Management Mechanism. State purpose and functionality of the mechanism.
   C) What is SCI? Draw and Explain Life cycle of SCI.
   D) Elaborate on core values of Extreme programming.
   E) Briefly explain principles of Agile development.
   F) Write a short note on CASE.

3. Attempt the following **(Any Three)** 15
   A) Specify what measures can be taken for Quality Assurance while developing Software.
   B) Explain Terms Error, Fault, Failure, Bug, Crash. Explain how they are related with each other.
   C) Write a short note on Static Testing.

D) Explain Unit Testing. Explain how it is different than Integration Testing.
E) With graphical representation explain Defect logging and tracking.
F) Elaborate on: "Test Plan plays an crucial role in Testing"

4. Attempt the following **(Any Three)**   15
   A) What is Structural Testing? State advantages and disadvantages of Structural Testing.
   B) Draw the Flow graph for the given code. Define Predicate node. Whether predicate nodes exist in resultant graph? If yes, 'Which are they?

   while (e) {
   x = y **+ 1**;
   z=x
   if (d) x = y+z;
   z **= 1**;
   }
   Z **= X**;

   C) Explain characteristics of Boundary value analysis. Explain the same with suitable example.
   D) What is Cyclomatic Complexity? State the formula to calculate it. What is the purpose of calculating Cyciomatic Complexity?
   E) Explain Mutation Testing process.
   F) Explain in detail Unit testing and Integration testing for Object Oriented programming.

5. Attempt the following **(Any Three)**   15
   A) A project has been defined to contain the following list of activities along with their required times for completion.

Activity No	Activity	Expected completion time	Dependency
1	Requirements collection	4	-
2.	Screen design	7	1
3.	Report design	6	1
4.	Database design	3	2,3
5.	User documentation	8	1, 4
6.	Programming	6	4
7.	Testing	4	5, 6
8.	Installation	1	5, 7

   Draw a PERT chart for the activities specify below. Calculate the earliest expected completion time. And Also find the critical path.

B)   Write a short note on CMM.
C)   With the help of key points explain how Alpha Testing different than Beta Testing.
D)   Explain different Quality dimensions needed to be focus while Web site Testing
F)   Briefly Elaborate on Managing changes in requirements.
F)   Explain mechanism of Regression Testing. State the idea behind Regression Testing.

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