

This question paper contains 4+1 printed pages]

Your Roll No . . . .

**6193**

**B.Sc. (H) Computer Science/IV Sem. J**

**Paper—402 : SOFTWARE ENGINEERING**

(For Admissions of 2001 and onwards)

**Time 3 Hours**

**Maximum Marks 75**

*(Write your Roll No on the top immediately on receipt of this question paper )*

**Note .—Attempt all questions. Parts of a question**

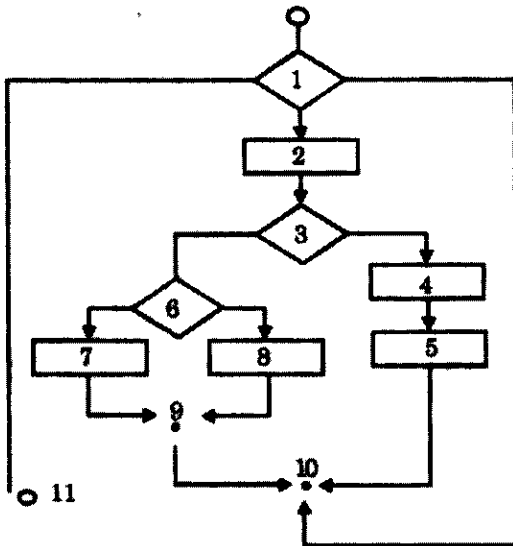
**must be answered together**

1. (a) "Software doesn't wear out." Justify the statement  
with the help of "bathtub curve" 3
- (b) Define software reliability in your own words. How  
is it measured ? 2
- (c) What do you understand by process maturity ?  
Describe the various levels of CMM along with  
key process areas 5

**P T O**

2. (a) Describe the factors that should be considered while planning the structure of various software engineering terms. 5

- (b) For the flow chart given below, draw the flow graph and compute the Cyclomatic Complexity. 5



- 3 (a) Use the COCOMO II Model to estimate the effort required to build software for a simple ATM that produces 12 screens, 10 reports and will require approximately 80 software components. Assume average complexity (screen-2, reports-5, components-10) and average developer/environment maturity as 13. Use the application composition model with object points ? 5
- (b) Discuss various project scheduling techniques that are applicable to software development. 5
- 4 (a) Explain the following .
- (i) Can a program be correct and still not reliable ?
- (ii) Is it possible to assess the quality of software if the customer keeps changing the functional requirements ? 5

- (b) You have been appointed a project manager for a major software product company. Your job is to manage the development of the next generation version of its widely used word-processing software. Because competition is intense, tight deadlines have been established and announced. Which model and team structure would you choose ? Justify your answer

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5. Differentiate between the following (any four) :

- (a) Corrective Maintenance and Adaptive Maintenance
- (b) Known Risks and Predictable Risks
- (c) Stamp Coupling and Content Coupling
- (d) Project Metrics Vs. Process Metrics
- (e) Facilitated Application Specification Techniques (FAST) and Quality Function Deployment (QFD)

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- 6 Write notes on the following (any four) :
- (a) Pareto Principle
  - (b) Stress Testing
  - (c) Formal Technical Review
  - (d) Defect Removal Efficiency (DRE)
  - (e) Software Configuration Management (SCM). 10
7. (a) You have been asked to build an Online Admission System for University of Delhi. :
- (i) Develop an entity/relationship diagram that describes data objects, attributes and relationships;
  - (ii) Develop a use case for the system;
  - (iii) Develop a level-1 DFD for the system;
  - (iv) Map the DFD into software architecture ? 12
- (b) As you move outward along the process flow path of the Spiral Model, what can you say about the software that is being developed or maintained ? 3