



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 113402

Roll No.

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B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15
SOFTWARE ENGINEERING

Time : 3 Hours]

[Total Marks : 100

Note: 1. Attempt all question.

2. All question carry equal marks.

- 1 Attempt any FOUR question 5×4=20
- a. Define software. Give the various application areas of the software.
 - b. Define the software crisis. What are possible solutions to the present software crisis?
 - c. Define the following:
 - I. Water fall Model
 - II. Spiral Model
 - d. What are three essential qualities of software? Explain each.
 - e. What are the characteristics to be considered for the selection of the life cycle model?
 - f. Explain software development life cycle. Discuss various activities during SDLC.

- 2 Attempt any FOUR questions 5×4=20
- a. Define functional and non-functional requirements.
 - b. Software requirement analysis is unquestionably the most communication- intensive step in the software engineering process. Why does the communication frequently break-down?
 - c. Define DFD. What are the different levels of DFD?
 - d. Compare ISO and SEI-CMM models.
 - e. How do you define Reliability? Discuss various models for reliability allocation.
 - f. Describe the difference between Verification and Validation and explain why validation is particularly difficult process?

- 3 Attempt any TWO questions, 10×2=20
- a. Define software architecture. Explain why it may be necessary to design the system architecture before the specifications written with examples.
 - b. What are the main difference between coupling and cohesion? Explain various type of cohesion and coupling. What are problems likely to arise if two modules have high coupling?
 - c. Explain Halestead's software science of software measurement and metrics. Calculate Halestead's basic measure on factorial code given below:

```
int fact (int n)
{ if (n= =0)
  return 1;
  else
  return n*fact (n-1)
}
```

- 4 Attempt any TWO questiong . 10×2=20
- a. Discuss the differences between black-box and structural testing and suggest how they can be used together in the defect testing processes.
 - b. What should be the criteria for designing test cases ? Derive a set of test cases for the following : A sort routine which sort arrays of integers.
 - c. Explain regression and acceptance and acceptance testing in detail.
- 5 Attempt any TWO question. 10×2=20
- a. Write notes on Constructive Cost Models (COCOMO).
 - b. What do you understand by the term CASE tools? Discuss the benefits of using CASE tools.
 - c. Discuss the following:
 - i. Reverse Engineering
 - ii. Software Risk Analysis
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