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**Question Paper Code : 91348**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Fifth Semester

Computer Science and Engineering

CS 2301/CS 51/10144 CS 502 — SOFTWARE ENGINEERING

(Regulation 2008/2010)

(Common to PTCS 2301/10144 CS 502 — Software Engineering for B.E. (Part-Time)  
Fifth Semester CSE – Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define: Software Engineering.
2. Differentiate: Verification Vs Validation.
3. Give two examples of non-functional requirements.
4. What is a data dictionary?
5. Define: Modularity.
6. 'A system must be loosely coupled and highly cohesive'. Justify.
7. What is validation testing?
8. List any two test coverage criteria.
9. What is version control?
10. Define: Risk.

PART B — (5 × 16 = 80 marks)

11. (a) Compare the life cycle models based on their distinguishing factors, strengths and weaknesses. (Present in the form of table only). (16)

Or

- (b) (i) What is Business Process Engineering (BPE)? Explain with reference to architectures that must be analysed and designed within the context of business goals and objectives. (10)
- (ii) Explain how product engineering helps translate customer need to a working product. (6)

12. (a) (i) Differentiate functional and non-functional requirements. (4)  
(ii) Explain the steps involved in initiating requirements engineering. (12)

Or

- (b) (i) What is a prototype? (2)  
(ii) Explain the process of prototype development. (10)  
(iii) List advantages of using prototypes. (4)
13. (a) Explain the following design concepts : abstraction, modularity, patterns, functional independence. (16)

Or

- (b) (i) What is a real time system? (3)  
(ii) Explain monitoring and control systems using as example a burglar alarm system. (10)  
(iii) Explain why real-time systems usually have to be implemented using concurrent processes. (3)
14. (a) (i) Given a set of 'n' numbers, write an algorithm that finds whether a given number is positive, negative, zero, even or odd. Finally, the total number in each category is also printed. Draw the flow graph and enumerate paths for testing. Determine the number of independent paths using cyclomatic complexity. (8)

(ii) Given:

```
(1)  x = 2; y = 12;
      for i = 1 to x + y - 1
          print ('good luck');
      next i;
```

```
(2)  for i = 1 to m
      for j = i + 1 to n
          print i, j;
      next j
      next i
```

Write the rules applicable for testing loops. Apply the same to the above and list the test cases. (8)

Or

- (b) (i) What is system testing? Discuss types of system tests. (12)  
(ii) Explain the debugging process. (4)

15. (a) (i) Explain function point approach to establish size of a project. (10)  
(ii) Compute function point value for a project with the following information domain characteristics: (6)

No. of external inputs – 30

No. of external outputs – 52

No. of external inquiries – 22

No. of log files – 12

No. of external interface files – 2

Assume complexity adjustment values for above are average (4,5,4,10,7 respectively).

Or

- (b) (i) Explain the Delphi method for estimation. (8)  
(ii) What is Software Configuration Management? (2)  
(iii) Write short notes on the change control process. (6)