



Reg. No. :

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|

**Question Paper Code : X 67537**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Fifth Semester

Computer Science and Engineering

CS 1301 – SOFTWARE ENGINEERING

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

**(10×2=20 Marks)**

1. Draw the system engineering hierarchy.
2. Differentiate between waterfall model and spiral model.
3. Identify whether each of the following requirements are functional/non-functional and whether they are verifiable/not verifiable.
  - a) Extending the system by providing more counters for customers in a ticket booking system.
  - b) Withdrawing money from bank in a banking system.
4. What are PSPEC and CSPEC ?
5. List out the elements in design model.
6. Why we need Software Configuration Management (SCM) ?
7. “Testing techniques must be selected according to project need”. Substantiate,
8. State any two techniques used for white box testing.
9. What are the metrics computed during error tracking activity ?
10. How are the CASE tools are classified ?



## PART – B

(5×16=80 Marks)

11. a) For each of the following types of projects, choose the most appropriate life cycle model and justify your choice by a couple of lines of explanation.
- You are migrating a legacy application in mainframes to Oracle. The project goes through well defined phases of contract signing, taking each program of the current system with a well defined acceptance test data, converting it to Oracle and proving that the output matches the expected output. It is not possible to seek intermediate feedback.
  - You are developing a proof-of-concept to show your prospect on how your product is suited for developing wireless applications. You do, not have access to expensive CASE tools.

(OR)

- b) i) What is prototype model ? Illustrate with example. State its merits and demerits.
- ii) Compare and contrast verification and validation.
12. a) i) Differentiate functional and non-functional requirements. Give examples for each. (4)
- ii) What is a Use Case ? Show the basic primitives (constructs) of a Use Case diagram. (4)
- iii) Develop the Use Case diagram for the requirement given below. (8)
- ‘Landmark’, the bookstore would like to automate its inventory operations. Books are bought against a purchase order that is created by the store owner. On receipt of books, they are automatically added to the existing inventory. Details like title, author, published, edition and price are updated. When a book reaches reorder level, automatically purchase order is generated.

(OR)

- b) i) What is behavioural modelling ? (2)
- ii) How does the state diagram represent behaviour of a system. Elaborate by explaining constructs used in developing a state diagram. (5)
- iii) Draw the state diagram for an ‘Elevator System’ that is used to transport people from one floor to another. Explain. (9)



13. a) Explain the fundamental software design concepts in detail. **(16)**

(OR)

b) Explain the design steps of the transform mapping. **(16)**

14. a) Discuss about black box and integration testing.

(OR)

b) Write about control structure testing and system testing.

15. a) i) What are the types of maintenance ? Explain them. **(6)**

ii) Explain earned value analysis with an example. **(10)**

(OR)

b) Describe in detail COCOMO model for software cost estimation. Use it to estimate the effort required to build software for a simple ATM that produces 12 screens, 10 reports and has 80 software components. Assume average complexity and average developer maturity. Use application composition model with object points.

---