[3763] – 200

T.E. (Computer) (Semester – II) Examination, 2010
SOFTWARE ENGINEERING
(2003 Course)

Time : 3 Hours Max. Marks : 100

Instructions : *1) Answers to the **two** Sections should be written in **separate** answer books.*
*2) Figures to the **right** indicate **full** marks.*
3) From Section I, answer (Q1 or Q2) and (Q3 or Q4) and (Q5 or Q6)
4) From Section II, answer (Q7 or Q8) and (Q9 or Q10)and (Q11 or Q12)
*5) Neat diagrams must be drawn **wherever** necessary.*
*6) Make suitable assumptions **wherever** appropriate and relevant.*

SECTION – I

1. a) Explain the framework activities that are used during Personal Software Process (PSP). 5

   b) What is software process ? Explain the various approaches for assessing the software process. 6

   c) Explain the following : 6
      i) Customer myths
      ii) Drawbacks of Rapid Application Development (RAD) model.

OR

2. a) Write short note on the Concurrent Development Model. 5

   b) What is process pattern ? Explain in short the template for describing a process pattern. 6

   c) In the context of Capability Maturity Model Integration (CMMI), explain the specific goals and specific practices defined for project planning key process area. 6

P.T.O.

3. a) What are the objectives of software testing ? Explain the various testing principles. 5

   b) Explain Product Engineering Hierarchy with neat labeled diagram. 6

   c) Explain the core principles that focus on software engineering practice. 6

OR

4. a) Explain the coding and validation principles that guide the coding task in software engineering. 5

   b) Explain with diagram, Hatley Pirbhai modelling for system context diagram. 6

   c) Explain the deployment principles that should be followed as the team prepares to deliver a software increment. 6

5. a) What are the problems in requirements elicitation ? Explain the concept of Requirements Management. 6

   b) Explain the following elements of analysis model : 4

      i) Flow oriented elements

      ii) Behavioral elements.

   c) Explain with examples, how analysis classes are identified ? Explain how operations are defined for an analysis class. 6

OR

6. a) Explain the following : 6

      i) Role of swimlane diagram in scenario-based modelling

      ii) Specification and validation as the requirements engineering tasks.

   b) Explain with notations and example, the role of analysis packages in class-based modelling. 4

   c) What are the objectives that the analysis model must achieve ? State and explain any four rules of thumb that should be followed when creating the analysis model. 6

SECTION – II

7. a) In the context of architectural design, what are archetypes ? Explain how the architecture is refined into components. **5**

   b) Explain the four characteristics of a "Well-formed" design class. **6**

   c) Explain the following : **6**
      i) Architectural design elements
      ii) Interface design elements.

OR

8. a) Explain with neat diagram, the user interface design evaluation cycle. **5**

   b) What is meant by design class ? Explain the various types of design classes. **6**

   c) In the context of data design, explain the following : **6**
      i) Data design at the architectural level
      ii) Data design at the component level.

9. a) In the context of object oriented testing, explain testing surface structure and deep structure. **5**

   b) Explain the following test strategies for Object Oriented software : **6**
      i) Unit testing in the OO context
      ii) Integration testing in the OO context.

   c) Explain the following types of system testing : **6**
      i) Stress testing
      ii) Security testing.

OR

10. a) What is the difference between verification and validation ? What errors are commonly found during unit testing ? **5**

    b) Explain with neat diagram, the overall software testing strategy for conventional software architectures. **6**

    c) Explain the following object – oriented testing methods : **6**
       i) Fault – based testing
       ii) Scenario – based testing.

11. a) Explain the following class based design metrics for Object Oriented (OO) systems : **6**
    i) Number of children (NOC)
    ii) Lack of cohesion in methods (LCOM).

    b) Write short note on metrics for source code. **4**

    c) Explain "coupling metrics" and "cohesion metrics" as the component – level design metrics. **6**

OR

12. a) Write short note on Architectural Design metrics. **6**

    b) Explain the following ISO 9126 quality factors : **4**
    i) Functionality
    ii) Usability.

    c) Explain the various operation – oriented metrics. **6**
