

Total No. of Questions : 12]  
**P1932**

104-15  
[4861]-304

SEAT No. :   
[Total No. of Pages : 3]

S.Y.M.C.A. (Engg.)

**OBJECT ORIENTED ANALYSIS AND DESIGN**  
**(2013 Course) (Semester-III) (410904)**

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate answer books.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume suitable data, if necessary.

**SECTION-I**

- Q1)** a) Explain two views of Software Development process. [4]  
b) Illustrate 4+1 View architecture diagram. [4]

OR

- Q2)** a) Explain Rational Unified Process with all its phases. [4]  
b) In brief explain Benefits of OO Methodology. [4]

- Q3)** a) Show how Extensibility mechanism can be used to extend UML through appropriate examples. [4]

- b) Write a short note on: [4]

- i) OCL
- ii) UML metamodel

OR

- Q4)** a) What do you mean that some UML diagrams show behavior of system? [4]

- b) Draw the use case diagram for a car rental application. The car rental agency has multiple offices/branches. The customer visits the agency for enquiry and takes a test ride then selects the car by signing terms and conditions form. The customer can also book the car through telephone, email and SMS. The agency checks the availability of cars and gives the status to the customer. The customer can also avail the driver facility if required by paying additional charges. The billing is done based on the type of vehicle and distance travelled. [4]

**Q5)** a)

A customer visits the online shopping portal. A customer may buy item or just visit the page and logout. The customer can select a segment, then a category, and brand to get the different products in the desired brand. The customer can select the product for purchasing. The process can be repeated for more items. Once the customer finishes selecting the product/s the cart can be viewed, if the customer wants to edit the final cart it can be done here. For final payment the customer has to login the portal, if the customer is visiting for the first time he must register with the site, else the customer must use the login page to proceed. Draw the class diagram. [6]

- b) Explain relationship use in a class diagram. [3]

OR

- Q6)** a) Compare with concepts/examples. [4]

- i) Aggregation and composition in class diagrams.
- ii) Passive objects and active objects.

b) Courseware management system. The organization offers a variety of courses in variety of area such as learning management techniques and understanding different software languages and technologies. Each course is made up of a set of topics. Tutors in the organization are assigned courses to teach according to the areas that they specialized in and their availability. The organization publishes and maintain a calendar of the different courses and assigned tutors every years. There is a group of course administrator in the organization who manage the courses including course contents, assign courses to tutors and defined the course schedule. The training organization aims to used the courseware management system to get a better control and visibility to the management of courses as also to streamline the processes of generating and managing the schedule of different courses. [5]

- Q7)** a) Describe use of combines fragments and lifeline in UML sequence diagram. [5]

- b) Write a short note on interaction diagram. [4]

OR

- Q8)** a) Draw sequence diagram for buying a product from vending machine. Make suitable assumptions. [5]

- b) Write a short note on Communication diagrams. [4]

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**Q9) a) Explain fork and join with an example. [4]**

**b) Explain concepts and notation through simple examples for following terms in UML: [4]**

- i) Activity
- ii) Action
- iii) Concurrent states
- iv) Object flow

**OR**

**Q10) a) Draw timing diagram by considering different scenario for washing machine. [4]**

**b) What is activity diagram? Explain with example. [4]**

**Q11) a) When do you model component diagrams? [4]**

**b) Describe commercial application of UML. [4]**

**OR**

**Q12) a) Write note on 'Applications of UML in embedded systems'. [4]**

**b) What is the need of package diagram? Explain with example. [4]**

