

Total No. of Questions : 8]

SEAT No. :

**P831**

**[5870]-1154**

[Total No. of Pages : 2

**T.E. (Information Technology)**  
**SOFTWARE MODELING AND DESIGN**  
**(2019 Pattern) (Semester-II) (Elective - II) (314454 D)**

*Time : 2 ½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Answers Q.1 or Q.2, Q.3 or Q.4 Q.5 or Q.6. Q.7 or Q.8.*
- 2) *Neat diagrams must be drawn wherever necessary*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume Suitable data if necessary.*

- Q1)** a) Draw the notations of synchronous asynchronous, return, Create object and destroy object messages in the context of sequence diagram [8]
- b) Draw a state machine diagram for coffee vending machine which prepare the coffee by adding material of coffee. Assume suitable data. [9]

OR

- Q2)** a) Explain in brief UML diagrams used for dynamic modeling, [6]
- b) What are swim lines? What is its use? Illustrate. [6]
- c) Construct sequence diagram for ATM banking system for invalid pin use case. [5]

- Q3)** a) Explain the design process of access layer classes with flow charts assuming suitable application. [9]
- b) Draw and explain deployment diagram for a Railway Reservation System. [9]

OR

- Q4)** a) What is OCL? Explain syntaxes for pre and post conditions with suitable examples. [9]
- b) Explain the Macro-level process of identification of view layer classes by analyzing use cases by using suitable example. [9]

- Q5)** a) Explain Strategy and State patterns with suitable examples. [8]
- b) Describe Introduction and Information Expert pattern with suitable examples. [9]

OR

**P.T.O.**

**Q6)** a) Elaborate on Pure Fabrication pattern and Protected variation pattern with suitable examples. [5]

b) Write a note on usage of following patterns [12]

i) Singleton pattern

ii) Adapter pattern

iii) Facade pattern

**Q7)** Write short notes on [18]

a) Software product line architecture

b) Real time software architecture

c) Component based software architecture

OR

**Q8)** a) Discuss in detail design of Client/ Server software architecture. [9]

b) What is object oriented software architecture. Discuss key features of the same. [9]

