

N.B. : (1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions out of remaining **six** questions.

(3) Make **suitable** assumptions wherever **necessary** and state them.

1. (a) Draw a detailed class diagram for the following scenario : 10
 consider a university database that keeps track of student and their majors, transcripts and registration and the university courses. Several sections of each courses are offered and each section is related to the instructor who is teaching. It also keeps track of sponsored research projects of faculty and graduate students of academic departments of the particular college. The database also keeps track of the research grants and contracts awarded to the University. A grant is related to one principal investigator and to all researchers it supports.
- (b) Draw a deployment diagram for the above scenario described in Q. 1(a). Also explain the same. 10
2. (a) Explain different types of test scenarios for system. 10
- (b) Construct the state diagram and interaction diagram for the online Railway reservation system. 10
3. (a) How can you identify classes and objects for particulars system ? Illustrate different steps. 10
- (b) Draw the activity diagram for any one scenario of Airline Reservation System (ARS). 10
4. (a) What is sequence diagram ? What are the elements are used in sequence diagram, explain each. 10
- (b) Explain object oriented metrics and testing. 10
5. (a) What are swim lanes. ? Explain with example. 10
- (b) You are appointed as a system administrator to setup the labs in your college. Write a problem statement and construct the component diagram. 10
6. (a) Differentiate between Rumbaugh object modeling and Booch Methodology. 10
- (b) Explain the following with suitable examples : Multiplicity, Generalization, Aggregation, Extend. 10
7. (a) What is static modeling ? Explain different steps that are performed in contracting a static model. 10
- (b) What is the difference between include and extends ? Explain with example. 10

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