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53 (CS 511) OOAD

2014

**OBJECT ORIENTED ANALYSIS
& DESIGN**

Paper : CS 511

Full Marks : 100

Time : Three hours

*The figures in the margin indicate full marks
for the questions.*

Answer any five questions out of seven.

1. (a) What do you understand by deployment diagram ? 2
- (b) Consider about all the elements of networking technology, create a deployment diagram for Internet (show all technologies like LAN, MAN and WAN etc). 15
- (c) Can the deployment diagram be applied in software development ? 3

Contd.

2. (a) What is SDLC ? Explain *any one* model of SDLC. 10
- (b) What are include and extend in a use case ? 4
- (c) Why use cases are important ? 2
- (d) Consider a library system, design a use case diagram for that library system. Make assumption whenever necessary. 4
3. (a) What is a state diagram and why they are useful ? 4
- (b) What are the different types of substate diagram ? Explain with example. 6
- (c) A transition in a state diagram may be labelled with an event, a guard or an action or with combinations of these three. 10
- (i) What is the difference between an event and a guard ?
- (ii) What is the difference between an event and an action ?
4. (a) What is an Object Oriented Programming ? 2

- (b) Is it possible to generate a corresponding object oriented code from an existing UML ? 3
- (c) Consider any class diagram and then generate the code equivalent using any OOP language. 5
- (d) Consider about a social network, make all the assumptions of various entities and relationships. Create a class diagram showing with multiplicity relationships between objects. 10
5. (a) What is the meaning of -(minus), +(plus) and #(hash) in a class diagram. 6
- (b) What are the key differences between sequence diagram and collaboration diagram types considering their characteristics and their applications. 6
- (c) Model the relationship between a Car (that has an engine and a color) and its owners (having a name) in a UML class diagram. A car can have several owners over time, but only one or none owner at a time. Do not forget cordinalities, role names, attributes and their types. 8

6. (a) What is an activity diagram ? 2
- (b) Draw the activity diagram for calculating a number power raised to a number *i.e.* x^y . 8
- (c) Design the activity diagram for printing all the prime numbers ranging from 16000 to 20000. 10
7. (a) What are activation and lifeline of a sequence diagram ? 4
- (b) Explain the sequence diagram when you withdraw money from ATM machine. (consider all possible conditions) 6
- (c) Create a sequence diagram for an electric pencil sharpener. There are the user, the pencil the insertion point, the motor and the sharpening element. (show all the activations, messages etc with proper label). 10