

Note: Attempt any five questions in all. All questions carry equal marks.

1. (a) Explain the various features of Object oriented design. 10  
(b) Compare and contrast the object model, dynamic model and functional model.
2. (a) Explain the concept of links and association in detail with examples. 10  
(b) What do you understand by object oriented programming? Compare it with procedural programming language. 10
3. (a) What is Class diagram? Explain interaction and collaboration diagram with the help of example. 10  
(b) Explain Liskov's substitution principle in detail.
4. (a) What is state chart diagram? Explain state chart diagram for telephone cell. 10  
(b) Explain deployment diagram for inventory management system. 10
5. (a) Design a class called Time. It takes two time objects T1 and T2 Display the difference in times

represented in T<sub>1</sub> and T<sub>2</sub> in the following format: 12

HH:MM:SS

Choose appropriate members of the class.

- (b) Write a main() function to test the time class designed in Q. No. 5 (a). 8
6. (a) Explain two pass assembler in detail. 10  
(b) Describe various types and functioning of loaders in detail. <http://haryanapapers.com> 10
7. (a) Prepare a case diagram for the purchase of gasoline from electronic petrol pump. Normally the customer pays cash. Add extended relationship to handle the incremental behavior of paying by credit card. Add and include relationship to represent the optional purchase of a car wash. Also list and explain the relevance of each factor. 10  
(b) What do you mean by UML? Explain the use-case diagram for credit of card validation system. 10
8. Write a short note on the following: 20
  - (a) Macro processor
  - (b) Collaboration diagram
  - (c) Virtual function with example
  - (d) Template class