1) a) What is bytecode in java?   1
   b) What happens for the following declarations in Java: int x; Sample y; where, Sample is a class. 1
   c) What is wrapper class in Java?   1
   d) Comment on the passing of a primitive data type and an object to a function.   1

2) a) Discuss the access specifier for a class in Java?   1.5
   b) How the shallow and deep copy of an object can be made in Java?   1.5
   c) What is the use of final keyword in Java?   1.5
   d) Anybody designing a course of a curriculum must follow certain specifications like, predefined maximum and minimum contact hours for the course. One must provide the content of the course, lecture plan and text books. What measures you will take to enforce all these?   1.5
   e) What is function overriding in Java and its use?   2
   f) What is checked exception?   1
   g) How can you find the length of array object and String object?   1

3) A stocklist contains itemcode and quantity available for different items. Salespersons update the stock. Updating the stock for different items may be simultaneous. But, Care is to be taken to resist the simultaneous update of same item. Design the necessary classes. Skeleton of the code/textual description may be provided to make your design understandable.   5

4) a) Roll and score of the students are to be stored in a suitable data structure where frequently one may like to know the score against a roll. Suggest the scheme in Java with justification and show how to store and retrieve score for a query.   3
   b) What is the difference between array and ArrayList?   1
   c) Accept a filename from user. If it is a directory then display the files in it else display a message "not a directory".   3

5) a) What is a frame in Java?   1.5
   b) Write down the steps for event handling.   2.5