IT201
[ET]

Enroll. No. -_____

END SEMESTER EXAMINATION : MARCH 2018

JAVA PROGRAMMING

Time :3 Hrs

Maximum Marks :70

Note: Attempt questions from all sections as directed.

Section - A : Attempt any Five questions out of Six . Each question carries 06 marks. [30 Marks]

Q1. Assume that you are running a courier agency. Each parcel user wants to send needs to have a certain number of stamps. The number of stamps depends upon the weight of the parcel. Create a class to accept weight of five parcels in floating-point value. Assume by your own range of weights and corresponding number of stamps to be spend. The cost of each stamp is Rs. 10 each per kg. Also, there is an amount charged by the courier company also depending upon the location of the courier to be delivered. For national courier, charges are Rs 50, for courier to be delivered in the same city charges are Rs30. Write a computer program to calculate and display the total cost of each parcel depending upon the number of stamps required to spend on each parcel and location of courier.

Q2. Identify the similarity and differences between Abstract class and Interface? Explain with an example?

Q3. If a user create two child threads in a program, how many total threads are in execution? Describe the complete flow of execution of a thread in a program along with its life cycle.

Q4. Discuss the steps involved in loading and running of an applet within a web browser? How applet is different from an application program?

Q5. Explain the Event Handeling Model used in java? Discuss the working of the model and steps involved in it?

Q6. Distinguish between JVM(Java Virtual Machine), JDK(Java Development Kit) and JRE(Java Runtime Environment)? How they are related to each other?

Section – B : Attempt any two questions out of three. Each question carries 10marks. [20 Marks]

Q7. (a) Can derived class object be assigned to a base class reference variable? How this concept is useful in Dynamic Method Dispatch? Explain with Example? (4)

(b) Create a class Customer having following members: (6)

private String custNo private, String custName, private String category

Parameterized constructor to initialize all instance variables

Getter methods for all instance variables
Perform following validations in the constructor

- custNo must start 'c' or 'C'
- custName must be atleast of 4 characters
- category must be either 'Platinum', 'Gold' or 'Silver'

When any of these validations fail, then raise a user defined exception InvalidInputException
Create a class TestCustomer having main method. Ask user to enter customer details.
Create an object of Customer and perform validations. Print details of customer.

Q8. (a) How the concept of stream is used in input/output operations in java? Design a program to print the number of words, number of lines from a text file?
(b) Illustrate the following AWT Components along with list of events and their event listeners associated with them?
Choice
ScrollBar

Q9. Design and develop a GUI based 8-Puzzle game with the following requirements:
- The Complete frame is divided into 9 blocks containing 8 random values from (1-8).
- One block is invisible.

- Blocks are arranged in a frame as GridLayout of 3 X 3.

- If you click on any block and its adjacent block is vacant then block get shifted towards vacant position.

- Blocks can only be moved Horizontally or Vertically.

- User will win the game only after sorting these blocks in ascending order.

Section - C : Compulsory question [20 Marks]

Q10. (a) Create three classes in java: Storage, Counter and Printer
The Storage class should store an integer.

The Counter class should create a thread and starts counting from 0 (0,1,2,3..) and stores each value in the Storage class.

The Printer class should create a thread that keeps reading the value in the Storage class and printing it.

Write a program that creates an instance of the Storage class and set up a Counter and Printer object to operate on it. (8)

(b) Create a class named Movie that can be used with your video rental business.The Movie class should track the Motion Picture Association of America (MPAA) rating (e.g., Rated G, PG-13, R), ID Number, and movie title with appropriate getter and

setter methods. Also create an equals() method that overrides Object 's equals() method, where two movies are equal if their ID number is identical. Next, create three additional classes named Action , Comedy , and Drama that are derived from Movie . Finally, create an overridden method named calcLateFees that takes as input the number of days a movie is late and returns the late fee for that movie. The default late fee is $2/day. Action movies have a late fee of $3/day, comedies are $2.50/day, and dramas are $2/day. Test your classes from a main method. (7)

(c) Create a class DirectoryList having main method. Read a directory name from user. Search the existance of the directory. If exists, display all files and subdirectories present in that. Otherwise, display a message Directory does not exist. (5)

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