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IT201 Enrol. No. .....

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END SEMESTER EXAMINATION : APRIL – MAY, 2018

JAVA PROGRAMMING

Time : 3 Hrs. *Maximum Marks : 70*

Note: ***Attempt questions from all sections as directed.***

SECTION – A (30 Marks)

Attempt any **five** *questions out of* **six.**

Each question carries **06** *marks.*

1. Define a class called Fuel_Monitor that will be used to check the amount of fuel that is left over in a vehicle after travelling a certain distance. The class should have instance variables tankCapacity to store initial size of the tank and efficiency to store initial efficiency of the vehicle. Also, set the variable fuel_in_tank to zero that is used to store initial fuel in tank. Include a method that returns ini_tank_size, ini_effi and fuel_in_tank. Include an method add_fuel that calculates how much fuel can be

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filled depending upon the fuel already in the tank and the capacity of the tank. Also, include a method drive_distance that returns how much distance can be travelled with the fuel available in the tank with the efficiency provided. Embed your class in a test program. You should decide which variables should be public, if any.

2. Discuss various access modifiers available in Java? How access modifier effect the visibility of a member in different access locations?

3. Differentiate the following :–

(a) Throw vs Throws

(b) Multithreading vs Multiprocessing

4. Write an applet application which will display colours in list box and a scrolling banner which scrolls from left to right within a browser. When user selects any color from the list, it changes the color of scrolling banner?

5. Discuss some general rules for using layout managers, Describe the various layout managers available in AWT?

6. Explain the various usage of static and final keywords in Java?

SECTION – B (20 Marks)

Attempt any **two** *questions out of* **three.**

Each question carries **10** *marks.*

7. (a) A set of 5 words are given. Write a program to reverse each word and arrange the resulting words in alphabetical order. (4)

(b) Explain the following terms :

(i) Super

(ii) Finalize() method

(iii) Object class (6)

8. (a) Discuss the role thread synchronization in inter-thread communication? Explain with example. (6)

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(b) Explain the various component and container classes in AWT package in Java. How they are different from each other? (4)

9. Write a program to design a GUI based Calculator application which perform addition, subtraction, multiplication and division operation on integers?

SECTION – C (20 Marks)

(Compulsory)

10. (a) Write a program to simulate a snake game. As an initial start, initialize five random. This game will record the time travelled by the snake from one location to another. Consider a database that records the coordinates of the locations along with time stamps. The location is stored in terms of x and y coordinates along with the timestamp ts that record the time taken in moving from one location to another. Write a program to identify the coordinates of the randomly generated locations and store them in an ArrayList. The coordinates should be input as doubles, and the timestamp as an integer.

Have your program compute the total distance travelled and the average time after traversing all the locations available. Use the map scaling factor of 1 = 0.1 miles.

For example, if we consider only two locations, then (x=1, y=1, ts=0) and (x=2, y=1, ts=3600), then the snake travelled a distance of 0.1 miles in 3,600 seconds, or 0.1 miles per hour. (8)

(b) Create a class TestArrayList having main method. Perform following functionality :

- Create an ArrayList having Product name of type String.
- Store different product names. Try to add duplicate product names.
- Print all product names.
- Print the first and last product names
- Print the size of ArrayList
- Remove a particular product from ArrayList
- Again verify the size of TreeSet (7)

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(c) Write a program to display current cursor position of the mouse pointer on an Applet using MouseMotion Listener interface. (5)