Code: DC60/DE123/DC113   Subject: JAVA AND WEB PROGRAMMING

DipIETE – CS/ET (Current & New Scheme)

Time: 3 Hours   **DECEMBER 2018**   **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions, answer any FIVE Questions, selecting THREE questions from Part A and TWO questions from Part B. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1   Choose the correct or the best alternative in the following: (2×10)

a. What is the output of the following Java code segment?

    System.out.println("13" + 5 + 3);

    (A) 21   **(B)** 1353

    (C) Run-time error   **(D)** 138

b. What is the output of the code segment below?

    int a = 11;
    int b = 5;
    int c = a/b;
    int d = a % b;
    int e = (c >= d)? d: b;
    System.out.println(c + "," + d + "," + e);

    (A) 1,2,2   **(B)** 2,1,1

    (C) 1,2,3   **(D)** 1,1,2

c. Which of the following combination of access location and access modifier can be accessed from a class?

    (A) Another class in same package; private protected

    (B) Non-subclass in another package; private protected

    (C) Subclass in another package; private protected

    (D) Subclass in another package; default

d. Which of the following io package element is used for reading byte input?

    (A) Reader   **(B)** Writer

    (C) InputStream   **(D)** OutputStream

e. Unity can be achieved through

    (A) Hierarchy   **(B)** Proximity

    (C) Repetition   **(D)** Continuation

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f. What is output of the code segment below?

```
public class MyThread extends Thread
{
 public static void main(String [] args)
   {
   MyThread t = new MyThread();
   t.start();
   System.out.print("one. ");
   t.start();
   System.out.print("two. ");
   }
   public void run()
   {
   System.out.print("Thread ");
   }
}
```

   (A) Compilation fails   **(B)** It prints "Thread one. Thread two."
   (C) An exception occurs at runtime   **(D)** The output cannot be determined

g. Which one of the following is not a runtime error?

   (A) Dividing an integer by zero

   (B) Attempting to use a negative index for an array

   (C) Use of undeclared variable

   (D) Converting an invalid string to a number

h. What is the text output of the following CSS code segment as seen in a webpage?

```
<select id="country" name="country">
<option value="australia">Australia</option>
<option value="usa">USA</option>
</select>
<input type="submit" value="do not submit">
```

   (A) Australia, submit   **(B)** USA, submit
   (C) Australia, do not submit   **(D)** USA, do not submit

i. Given Which of the following selector selects all elements of E that have the attribute attr that ends with the given value?

   (A) E[attr^=value]   **(B)** E[attr$=value]
   (C) E[attr*=value]   **(D)** E[attr~=value]

j. Can a stream act as a data source for another stream?

   (A) No, streams must be connected directly to physical devices.

   (B) No, streams do not deal with data.

   (C) Yes, some streams can be connected together.

   (D) Yes, an input stream can be connected to an output stream.

PART A
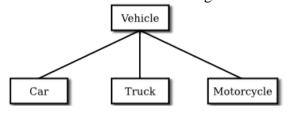### Attempt any THREE questions. Each question carries 16 marks.

Q.2   a. Compare and contrast Java, C and C++ programming languages. Illustrate each difference with an example. **(8)**

   b. Discuss the following Java concepts   **(4x2)**
      i.   Java virtual machine
      ii. Command line arguments and their usage in Java with suitable examples

Q.3   a. Explain Break and continue statements used in Java in detail.   **(8)**

            b. List and discuss the various types of scopes of variable in Java. Provide an example for each type.   **(8)**

Q.4   a. Create Java skeleton code for the following class hierarchy.   **(8)**

            b. Illustrate the usage of multilevel inheritance and hierarchical inheritance in a Java program with suitable examples.   **(8)**

Q.5   a. Describe the various forms of implementing interfaces. Give Java examples for each case.   **(8)**

            b. Explain the life cycle of a Thread. Also draw the state transition diagram for a thread.   **(8)**

Q.6   a. What is the purpose of the exception handling mechanism in Java? Discuss the syntax for exception handling and for throwing custom exceptions. Give suitable examples.   **(8)**

            b. Describe how a text file can be created in Java. The text file should be used for reading and writing English characters. Show the required Java code for the above.   **(8)**

PART B
Attempt any TWO questions. Each question carries 16 marks.

Q.7   a. Explain the web development Process.   **(8)**

            b. Give the XHTML syntax and examples for the following   **(4x2)**
               i.   Line wrapping
               ii. Inline elements
               iii. Length units
               iv. Presentation styles

Q.8.   a. How should the website architecture for a website be selected? Explain how the information architecture is distinct from the website architecture.   **(8)**

            b. Discuss in detail why the client identity is important for good organizational framework of a website?   **(8)**

Q.9   a. List and describe the steps for deploying a CGI program in detail.   **(8)**

            b. Write notes about the following with suitable examples   **(4x2)**
               i.   Javascript events and event objects
               ii. Embedding Javascript in a webpage