

## AMIETE – IT

Time: 3 Hours

**DECEMBER 2014**

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 code?

```
public class XYZ{
    public static void main(String args[]) {
        int x = 4;
        System.out.println("Value is " +((x>4)?99.9 : 9));
    }
}
```

- (A) The output is: Value is 99.9      (B) The output is: Value is 9  
(C) The output is: Value is 9.0      (D) Compiler error

b. If all three top-level elements occur in a source file they must appear in which order?

- (A) Import statements, package declaration, classes  
(B) Package declaration, import statements, classes  
(C) Imports must come first; order for package declaration and class definitions is not significant  
(D) Package declaration must come first; order for import statement and class definitions is not significant

c. Given these declarations, chose the correct answer?

```
byte x = 5;
byte y = 2;
byte z = x * y;
System.out.println("Value of z is " + z)
```

- (A) Value of z is 10      (B) Value of z is 5  
(C) Value of z is 2      (D) Compiler Error

- d. It is desirable that a certain method within a certain class can only be accessed by classes that are defined within the same package as the class of the method. How can such restrictions be enforced?
- (A) Mark the method with the keyword *public*
  - (B) Mark the method with the keyword *protected*
  - (C) Mark the method with the keyword *pack*
  - (D) Do not mark the method with any accessibility modifiers
- e. Which methods from the *String* and *StringBuffer* classes modify the object on which they are called?
- (A) The *charAt()* method of the *String* class
  - (B) The *replace()* method of the *String* class
  - (C) The *reverse()* method of the *StringBuffer* class
  - (D) The *length()* method of the *StringBuffer* class
- f. Exceptions defined by *Error* and *RuntimeException* classes and their subclasses are known as
- (A) Runtime error
  - (B) Checked exception
  - (C) Unchecked exception
  - (D) Both (B) and (C)
- g. Which of these events will cause a thread to die?
- (A) The method *sleep()* is called
  - (B) The method *wait()* is called
  - (C) Execution of the *start()* method ends
  - (D) Execution of the *run()* method ends
- h. The \_\_\_\_\_ layout manager is the default layout manager for frame.
- (A) Flow layout manager
  - (B) Card layout manager
  - (C) Border layout manager
  - (D) Grid bag layout manager
- i. In the list given below, which subclass of Component cannot be directly instantiated?
- (A) Panel
  - (B) Dialog
  - (C) Container
  - (D) Frame
- j. A "mode" argument such as "r" or "rw" is required in the constructor for the class
- (A) *DataInputStream*
  - (B) *InputStream*
  - (C) *RandomAccessFile*
  - (D) *File*

**PART A**

Answer any **THREE** Questions. Each question carries 16 marks.

- Q.2** a. The signature for *main()* function in every Java application program is *public static void main(String args[])*  
What is the role of keyword '*static*' in the above declaration? What happens if we don't write keyword *static* in the above declaration? (4)
- b. Write a program to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7. (6)
- c. Explain the syntax of *for* loop. Also, describe with the help of an example, the *enhanced for* loop. (6)
- Q.3** a. Explain the use of '**final**' keyword in respect of inheritance. (5)
- b. Under what circumstances the compiler insists that a class must be declared as an abstract class? Can an abstract class be declared as final also? (4)
- c. Define Interface. How it is similar and different from a class? Can an interface be extended? If yes, explain with the help of example. (7)
- Q.4** a. With the help of a suitable figure, describe the life cycle of a thread. (8)
- b. Create a try block that is likely to generate exception at three different places. Provide the necessary catch blocks to catch and handle those exceptions. (8)
- Q.5** a. Suppose that you are writing an applet, and you want the applet to respond in some way when the user clicks the mouse on the applet. What are the four things you need to remember to put into the source code of your applet? (4)
- b. With the help of suitable program code, explain the following methods:  
(i) *equals()* versus *==*  
(ii) *equals* and *equalsIgnoreCase()* (6)
- c. Write a program that generates random integers and stores them in a file named "rand.dat". The program then reads the integers from file and displays on the screen. (6)
- Q.6** a. Give reasons why you might want to convert a collection into an array. Write a program to illustrate how to convert an *ArrayList* into an array and find the sum of elements of an *ArrayList*. (8)
- b. Describe the two features that define the essence of *Swing*. (8)

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**PART B**

Answer any TWO Questions. Each question carries 16 marks.

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- Q.7** a. What are the major tasks in the overall website development process? What knowledge and skills do you expect to learn to be able to participate in this process? (6+3)
- b. Define HTML. What are the different categories under which HTML elements fall? (7)
- Q.8** a. With the help of HTML code, describe Page Forwarding. (4)
- b. Explain the six concrete steps to Information Architecture. (12)
- Q.9** a. Create a HTML form that has the following controls: (10)
- A TEXT control called firstName to collect the first name.
  - A TEXT control called lastName to collect the last name.
  - A TEXT control called email to collect the email address.
  - A TEXT control called phone to collect the phone number.
  - A SELECT control called software for displaying a combo box with software list.
  - A SELECT control called os for displaying a combo box with operating systems.
  - A TEXTAREA control called txtArea for displaying problem description.
  - A SUBMIT control called submit for submitting the information.
- b. Write a function in java script that validates if the content has the general syntax of an email. (6)