2008

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours   *Full Marks 70*

The figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Question)

1.   **Choose the correct alternatives for the following :**   10 x 1 = 10

   i)   int i = 2 ;

        System.out.println ("welcome"+1+2);

        The Output is :

         a)   welcome3   b) welcome12

         c)   compiler error   d) None of these.

   ii)   int x = 2;

       for (x = 0; x <5; x++)

       System.out.println(x);

      The output is

    a)   0 1 2 3 4   b) 1 2 3 4

    C)   2 3 4   d) none of these.

     iii)   String a = "3";

         System.out.println(a);

         The output is

a) 3   b) a
c) compiler error   d) runtime exception

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iv)   int a = 2;

   for (:a<5: a++)

  System.out.println(a);

   The output is

  a) compiler error   b)   runtime exception

  c) infinite loop   d) 2 3 4

v)   int arr [] = new int[3];

  arr[3] = 7;

  System.out.println(arr[3]);

  The output is

   a) 3   b)   7

   c) compiler error   d)   runtime exception

vi)   In java applet , Stop() method can be invoked for a thread

     a) once   b)   twice

     c) compiler error   d)   not at all.

vii)   Dynamic method dispatcher is used for

  a)   resolving method overriding
  b)   resolving multilevel inheritance
  c)   resolving multiple inheritance anomally
  d)   none of these.

viii)   JVM stands for

  a)   Java Virtual Machine
  b)   Java Visual Machine
  c)   Java Vision Machine
  d)   None of these.

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ix)   String s = "WBUT"

      System.out.println(s.charAt(2));

      The output is

   a) **U**   b) Exception occurs   c) 2   d) B.

x)   **What is the return type of read ( ) method of InputStream class ?**

   a) **String**   b) Void   c) Float   d) None of these.

xi)   **Consider the following statements :**

    int a = 10, b = 15;

    a = (a<b) ? (b+a) : (b-a):

    what will be the value of a after executing these statements ?

   a) **10**   b) 25   c) 15   d) 5.

xii)   **Which of the following statement is true regarding constructors ?**

   a) **All cases must be define as a constructor**
   b) **A constructor can be defined private**
   c) **A constructor can return a value**
   d) **A constructor must initialize all the fields of a class.**

GROUP – B

(Short Answer Type Question)

Answer any three of the following.   3 x 5 = 15

2. What do you mean by object oriented programming ? How it differs from conventional procedural
   Programming ?   2 + 3
3. What is Wrapper Class ? What is the utility of final keyword ?   2 + 3
4. What are the differences between method overloading and method overriding ? Give
   Example for both.   5
5. What do you mean by interface ? Write the difference between interface and abstract class.   2 + 3
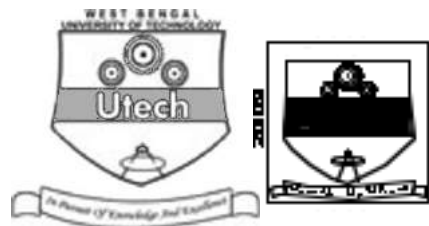6. Describe the difference string functions.

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GROUP – C

(Long Answer Type Question)

Answer any three of the following.   **3 x 15 = 45**

7. a) Write a program in JAVA to reverse a string.

   b) Write a program in JAVA to input a number from the command line & find whether it is Prime

   or not.   **7.5 + 7.5**

8.   What is applet ? Describe an Applet life cycle.   Develop an Applet that receives three numeric values

   As input from the user and then displays the largest of the three on the screen , also write the

   HTMl code.   **1 + 3 + 8 + 3**

9.   What is thread ? How do we set the priorities for thread ? Describe with an example . Write a

   Small program which will synchronize among two threads.   **2 + 8 + 5**

10.   a)   Describe the structure of typical Java program.

   b)   What do you mean by method overloading ? Explain with example .

   c)   Write a java program to find out the sum of harmonic series :

          $1 + ½ + 1/3 + ………$ up to n^{th} term , for any value of n.   **4 + 3 + 8**

11.   a)   Discuss the lifecycle of thread .

   b)   Write a small program with output to show thread .

   c)   What do we mean by thread priority ?   **5 + 6 + 4**

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CS/BCA (SUPPLE)/SEM-6/BCAE-602B/09
OBJECT ORIENTED PROGRAMMING WITH JAVA (SEMESTER - 6)

1. ....
   Signature of Invigilator

2. ....   **Reg. No.**
   Signature of the Officer-in-Charge

   Roll No. of the Candidate

- -

CS/BCA (SUPPLE)/SEM-6/BCAE-602B/09
ENGINEERING & MANAGEMENT EXAMINATIONS, AUGUST – 2009

OBJECT ORIENTED PROGRAMMING WITH JAVA (SEMESTER - 6)

Time : 3 Hours]   [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

FOR OFFICE USE / EVALUATION ONLY
Marks Obtained

	Group – A								Group – B		Group – C			Total Marks	Examiner's Signature
Question Number															
Marks Obtained															

....
Head-Examiner/Co-Ordinator/Scrutineer

S-54014 (18/08)

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CS/BCA (SUPPLE)/SEM-6/BCAE-602B/09
OBJECT ORIENTED PROGRAMMING WITH JAVA
SEMESTER - 6

Time : 3 Hours]   [Full Marks : 70

GROUP – A
(Multiple Choice Type Questions)

1.   Choose the correct alternatives of the following :   10 × 1 = 10

   i)   Which code segment could execute the stored procedure "countRecs()" located in a database server ?

      a)   Statement stmt = connection.createStatement() ; stmt.execute("COUNTRECS()") ;

      b)   CallableStatement cs = con.prepareCall("{call COUNTRECS}"); cs.executeQuery();

      c)   StoreProcedureStatement spstmt = connection.createStoreProcedure("countRecs()"); spstmt.executeQuery();

      d)   PrepareStatement   pstmt   =   connection.prepareStatement("countRecs()"); pstmt.execute();

   ii)   If (check4Biz(storeNum) ! = null) {}

      Referring to the above, what datatype could be returned by method check4Biz() ?

      a)   Boolean   b)   int

      c)   String   d)   char.

iii)
```
int j;

for(int i=o;,14;i++){

if(i<10){

j = 2 + i;

}

System.out.println("j:" + j + "i:" + i);

}
```

What is WRONG with the above code ?

a)   Integer "j" is not initialized

b)   Nothing

c)   You cannot declare integer "i" inside the for-loop declaration

d)   The syntax of the "if" statement is incorrect.

iv)   Which one of the followiong is a valid declaration of an applet ?

a)   Public class MyApplet extends java.applet.Applet {

b)   Public Applet MyApplet {

c)   Public class MyApplet extends applet implements Runnable {

d)   Abstract class MyApplet extends java.applet.Applet {

v)   int values [ ] = { 1, 2, 3, 4, 5, 6, 7, 8 } ;

for(int i = o ; i < X; ++ i)

System.out.println(values[i]) ;

Referring to the above, what value for X will print all members of array   "values" ?

a)   1   b)   7

c)   8   d)   9.

vi)
```
public int m1(int x){

int count=1;

try {

count + = x;

count + = m2(count);

count++;

}

catch(Exception e) {count - = x;}

return count;

}
```

Referring to the above, when m1(2) is invoked, M2() throws an ArithmeticException and m1() returns which one of the following ?

a)   1   b)   2

c)   3   d)   4.

vii)   Which one of the following statements is false ?

a)   Java supports multi-threaded programming

b)   Threads in a single program can have different priorities

c)   Multiple threads can manipulate files and get user input at the same time

d)   Two threads can never act on the same object at the same time.

viii) Which code declares class *A* to belong to the mypackage.financial package ?

a)   Package maypackage; package financial;

b)   Import mypackage.*;

c)   Package mypackage.financial.A;

d)   Import mypackage.financial.*;

6

ix)   What is the value of z ? double z = 7/(3 + 0·5) ;

      a)   0·5   b)   2·0

      c)   2·833333333   d)   3·0

x)   What is byte code in the context of Java ?

      a)   The type of code generated by a Java compiler

      b)   The type of code generated by a Java Virtual Machine

      c)   It is another name for a Java source file

      d)   It is the code written within the instance methods of a class.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2.   Explain OOPs properties of Java. "Java is a platform independent language" — Explain with the help of JVM.   2 + 3

3.   What are the types of inheritance available in Java ? Give example. What is the use of super( )keyword in Java.

4.   What is the utility of string tokenizer ? Write two methods of string tokenizer.   2 + 3

5.   What is object serialization in JAVA ? Give an example where you can define function in the interface.   3 + 2

6.   What is an abstract class ? Provide a short program to illustrate this.   1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. Describe applet life cycle. Write a program to show all the steps of applet life cycle. What are the different attribute of applet tag ? What is remote applet ?   3 + 5 + 5 + 2

8. What is the difference between string and string buffer ? Write a program in Java to search and edit an existing string. How can an exception be handled in Java ?

3 + 7 + 5

9. a) "Programmer can call a constructor from another constructor" — Explain with an example.

   b) Write a program that draws a selected geographic shape in random colour and at random location. The menu choices for the program are

   Shape

Circle
Rectangle
Square

   6 + 9

10. a) What is the difference between the inner class and nested class ? Give an example for both the classes.

    b) "In Java variables are initialized before any method called even constructor" — Explain with an example.

    c) What is Singleton class ?   8 + 4 + 3

11. What are the types of threads ? How can threds be generated in Java ? Write a program which can throws all the exception catch from the multiple blocks.   2 + 5 + 8

END

2010

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours   *Full Marks 70*

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Candidate are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Question)

1. Choose the correct alternatives for the following :   10 x 1 = 10

    i)   Which of these is known as short-circuit and operator ?

        a) &&   b) &

        c) ?&   d) None of these.

    ii)   A constructor can be inherited using the keyword

        a) Final   b) Static

        c) Super   d) None of these.

    iii)   int i = 2 ;

            System.out.println ("welcome"+1+2);

        The Output is :

        a) welcome3   b) welcome12

        c) compiler error   d) None of these.

    iv)   To inherit an interface from a class, we use the keyword

        a) extends   b) implements

        c) both (a) & (b)   d) None of these.

v)   In java applet, 'Stop()' method can be invoked for a thread

   a) once   b)   twice

   c) compiler error   d)   not at all.

vi)   Dynamic method dispatcher is used for

   a)   resolving method overriding
   b)   resolving multilevel inheritance
   c)   resolving multiple inheritance anomaly
   d)   none of these.

vii)   JVM stands for

   a)   Java Virtual Machine
   b)   Java Visual Machine
   c)   Java Vision Machine
   d)   None of these.

viii)   Each time we shift a value to the right using '>>' operator it divides the value by

   a)   4   b) 2

   c)   8   d) None of these.

ix)   Which of the following statement is true regarding constructors?

   a)   All cases must be define as a constructor
   b)   A constructor can be defined private
   c)   A constructor can return a value
   d)   A constructor must initialize all the fields of a class.

x)   int x = 2;

        for (x = 0; x <5; x++)

        System.out.println(x);

     The output is

   a)   0 1 2 3 4   b) 1 2 3 4

   C) 2 3 4   d) none of these.

GROUP – B

(Short Answer Type Question)

Answer any three of the following.   3 x 5 = 15

2. What are the differences between run time polymorphism & compile time polymorphism ?   **5**
3. What do you mean by object oriented programming ? How it differs from Structure Oriented   **2 + 3**
    Programming ?
4. What are the differences between method overloading and method overriding ?   **5**
5. What is Garbage collection ? What is Static variable ? Give example foe both.   **1.5+1.5+2**
6. What is Synchronization ? When is it used ?   **3 + 2**

GROUP – C

(Long Answer Type Question)

Answer any three of the following.   3 x 15 = 45

7. a) What are the features of java language ? Describe.

    b) What do you mean by command line argument ?

    c) What do you mean by subclass constructor method ?

                                                                              5 + 5 + 5

8. a) Describe the complete life cycle of a thread.

    b) Explain the method by which you can block a thread.

    c) What is thread synchronization ?

    d) Describe Inter-thread communication.

                                                                              4 + 4 + 4 + 3

9.   a) What is applet ?

    b) Describe applet life cycle.

    c) What is local applet ?

    d) What are the difference between Java application & Java applet ?

    e) What are the application of applet tag ?   **2 + 4 + 2 + 5 + 2**

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10. a) What is an exception ? Explain with an example , how exceptions are handled in Java ?

b) What is multithreading ? Explain two advantages of multithreaded programs. Write a program in java
to   explain how different priorities can be assigned to different threads.

(2 + 4) + (2 + 2 + 5)

11.   a) What is a package ? Explain the difference access controls for packages in java .

b) What is Unicode ? Explain the advantages of using Unicode.

c) Explain operators with reference to java. Explain two dimensional array with example.

(2 + 3) + 2 + (3 + 5)

2011

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours *Full Marks : 70*

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Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

   i) String s = "s" ;

   System.out.println (s) ;

   The output is

   a) *s* b) "*s*"

   c) Compile error d) Run time error.

   ii) Consider the following statements :

   int $a = 3, b = 2$;

   $a = (a < b) ? (a + b) : (a - b)$;

   What will be the output of a ?

   a) 5 b) -1

   c) 1 d) 3.

[Turn over

iii) Consider the following statements :

int a [ ] = new int [3];

a [3] = 7;

System.out.println (a [3]) ;

The output is

a)   3
b)   7
c)   Compile error
d)   Run time error.

iv) Consider the following statements :

String s = "BCAE-602B" ;

System.out.println (s.char At (2));

The output is

a)   C
b)   A
c)   Exception occur
d)   2.

v) Which class can not be initialized ?

a)   Abstract
b)   Public
c)   Final
d)   Protected.

vi) How many catch clauses can try statement have ?

a)   One
b)   Any number
c)   Zero
d)   None of these.

vii) An exception is

a)   run time error
b)   compile time error
c)   machine error
d)   none of these.

viii) How many default constructors can a class have, when it has constructor ?

a)   1
b)   0
c)   2
d)   Any number.

ix) The JVM complies a java source code to

a)   object code
b)   executable code
c)   unicode
d)   none of these.

x) JRE stands for

a)   Java Research Engine
b)   Java Remote Engine
c)   Java Runtime Environment
d)   none of these.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 × 5 = 15

2. Explain method overloading and method overriding with the help of an example.

3. What do you mean by interface ? Write the difference between interface and abstract class.

4. "Objects are passed by reference in java." Explain with example.

5. What is "dynamic method dispatch" ? How is it accomplished ?

6. What is difference between 'default and public' modifier and 'protected and private' access modifier ?

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

7. a) What is the significance of final keyword used as a modifier before a variable ? How is it used for a method or a class ? Can an abstract method be declared as final ?   2 + 2 + 1

    b) Explain about 'this' keyword. Illustrate with a suitable example.   2 + 2

    c) What are the differences between private and static modifiers while used in classes ?   2

    d) What is the purpose of finalization ? Can we have more than one constructor in a class ? If yes, explain the need of such situation.   2 + 1 + 1

8. a) What is multithreading ? Is it synonymous with multiprocessing ?   2 + 1

    b) What is a thread ? How is it different from a process ?   1 + 2

    c) In how many ways a thread can be created ? Illustrate the pros and cons of the different ways of creating a thread.   2 + 2

    d) Discuss the following functions with example :   5

      i) run ( )   ii) suspend ( )   iii) setPriorities ( )

9. a) What is the purpose of Runabble Interface ? What is the collection interface ? Illustrate its usage.   2 + 1 + 2

 b) What is the difference between String & StringBuffer ? 3

 c) Write a Java program to add two strings using string buffer.   3

 d) What is a wrapper class ? Illustrate through example. Is String a wrapper class ?   2 + 2

10. a) Illustrate the use of serialization and deserialization.   3

 b) What is abstract base class ? What is concrete derive class ? Can there be an abstract class with no abstract methods in it ?   1 + 1 + 1

 c) Does Java support static or dynamic binding ? Explain.   2

 d) What is aggregation ? How is aggregation different from association and generalization ?   1 + 2

 e) Write a program in Java that demonstrates a three level inheritance. Use the various access controls for the same.   4

11. a) What is the difference between procedural programming paradigm and object oriented paradigm ?   2

 b) Explain the Java compilation and execution of Java programming steps.   2

 c) What is the role of JVM ? Is JRE different from JVM ?   2 + 2

 d) What do you mean by automatic garbage collection in Java ?   2

 e) What is use of finally clause in exception handling ? When is the finally clause of a try-catch-finally statement executed ? Illustrate through example.   2 + 3

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2012

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours   Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

$$10 \times 1 = 10$$

   i)   A constructor

   a)   must have the same name as the class it is declared within

   b)   is used to create objects

   c)   may be declared private

   d)   none of these.

   e)   a, b, c.

ii) Which of the following may be part of a class definition ?

    a) Instance variables

    b) Instance methods

    c) Constructors

    d) All of these.

iii) What is the difference between a Java applet and a Java application ?

    a) An application can in general be trusted whereas an applet can't

    b) An applet must be executed in a browser environment

    c) An applet is not able to access the files of the computer it runs on

    d) (a), (b) and (c).

iv) What is byte code in the context of Java ?

    a) The type of code generated by a Java compiler

    b) The type of code generated by a Java Virtual Machine

    c) It is another name for a Java source file

    d) It is the code written within the instance methods of a class.

v) What is garbage collection in the context of Java ?

    a) The operating system periodically deletes all of the java files available on the system

    b) Any package imported in a program and not used is automatically deleted

    c) When all references to an object are gone, the memory used by the object is automatically reclaimed

    d) The JVM checks the output of any Java program and deletes anything that doesn't make sense.

vi) Consider the following code snippet

    String river = new String ("Columbia") ;

    System.out.println(river.length()) ;

What is printed ?

    a) 6   b) 7

    c) 8   d) Columbia

    e) River.

vii) You read the following statement in a Java program that compiles and executes

    submarine.dive(depth);

What can you say for sure ?

    a) Depth must be an int

    b) Dive must be a method

    c) Dive must be the name of an instance field

    d) Submarine must be the name of a class

    e) Submarine must be a method.

viii) Consider the following program :

import myLibrary. *;

public class ShowSomeClass

{

// code for the class...

}

What is the name of the Java file containing this proram ?

a) myLibrary.java

b) ShowSomeClass.java

c) ShowSomeClass

d) ShowSomeClass.class

e) Any file name with the java suffix will do.

ix) Which of the following is TRUE ?

a) In java, an instance field declared public generates a compilation error

b) int is the name of a class available in the package java.lang

c) Instance variable names may only contain letters and digits.

d) A class has always a constructor (possibly automatically supplied by the java compiler)

e) The more comments in a program, the faster the program runs.

x) What is the full form of JVM ?

   a) Java Visual Machine

   b) Java Variable Management

   c) Java Virtual Machine

   d) None of these.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 × 5 = 15

2. What is similarity/difference between an abstract class and interface ?

3. What is thread ?   1

   What is multi-threading ?   2

   How to create a thread in a program ?   2

4. Display Traingle as follow :

1

2 3

4 5 6

7 8 9 10 ... N*/

5. What is the package ? What is the difference between throw and throws keywords ? 2 + 3

6. Explain polymorphism with suitable example.

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following. 3 × 15 = 45

7. a) What is the difference between Swing and AWT components ? 3

   b) Write a program to convert given no. of days into months and days. 5

   c) How are this and super used ? 2

   d) Write the difference between method overriding and method overloading. 5

8. a) What is meant by "Abstract Interface" ? 3

   b) What is the main difference between Java platform and other platforms ? 5

   c) Write life cycle of the Applet 7

9. a) In System.out.println(),what is System,out and println, please explain ? 3

   b) Explain teh following string handling function with syntax. 8

   c) Explain inheritance, Encapsulation concept. 4

10. a) What is the purpose of finalization ?   3

    b) What are the different identifier states of a Thread ?   6

    c) Write a program that welcomes a person whose name is passed to as its parameter. Write the exception handling code to handle the case when no name is passed to then appliation.   6

11. Compare between method overloading and method overriding in Java. What is the superkey in Java. Explain multithreading with suitable example. What is wrapper class Java ?   4 + (3 + 4) + 4

CS/BCA/EVEN/SEM-6/BCAE-602B/2015-16

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : BCAE-602B

OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours

Full Marks : 70

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Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

    $10 \times 1 = 10$

    i) Return type of a constructor method is

    a) int

    b) void

    c) class type itself

    d) nothing, as no specification of return type is needed.

    ii) Which of the following is used as a part of method signature in Java ?

    a) throw   b) try

    c) throws   d) finally.

6/60145

[Turn over

iii) Which one of the following is not true about an interface ?

a) A particular class can implement several interfaces

b) It can be implemented by an interface

c) It can be implemented by several classes

d) It can be partially implemented by a class.

iv) "String Buffer" differs from "String" in the sense that

a) String Buffer is used only to buffer data from an input or output

b) String Buffer allows text to be changed after instantiation

c) String Buffer holds zero length strings

d) String Buffer supports Unicode.

v) Which of the following cannot be used as a method modifier ?

a) private   b) generic

c) protected   d) synchronized.

6/60145   2

vi) Which of the following is not a reserved word in Java ?

a) transient   b) implements

c) include   d) instance of.

vii) A top level class without any modifier is accessible to

a) any class

b) any class within the same package

c) any class with the same file

d) any subclass of this class.

viii) What will be the result of running the following method with an input of 2 ?

Public int my Adder(int n) {

    Return 0 × 100 + ++n;

}

a) The method will return 259

b) The method will return 103

c) The method will return 260

d) The method will return 104.

6/60145   3   [Turn over

CS/BCA/EVEN/SEM-6/BCAE-602B/2015-16

ix) Which of the following is used to detect the selection made by a user on a Choice component ?

a) Action Listener   b) Item Listener

c) Mouse Listener   d) Selection Listener.

x) Contract of a class is meant by

a) Number of methods in the class

b) Number of data fields in the class

c) Number of constructors in the class.

d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. a) What is meant by specific import ?   1

b) The "String" type is not a primitive type, but known as a reference type. Justify.   2

c) What is the difference between an abstract class and an interface ?   2

3. a) Explain the private, protected, private protected modifiers in brief.   3

b) What is the function of finally ?   2

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4. a) What are different states in the life cycle of applet ?

2

   b) Sketch the life cycle of applet.   3

5. a) How does an application differ from an applet ?   3

   b) What are meant by local applet and remote applet ?

2

6. a) What is private constructor ?   3

   b) Is there any utility of a private constructor ?   2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. a) Write a program that checks whether the input String (the string should be taken from user in runtime) is palindrome or not.

   b) How to call a constructor from another one ?

   c) If we define the constructor in the private section then how we can create an object of that class ?

    d)   "In Java the variables are initialized before any method called even constructor." Explain with an example.   8 + 2 + 2 + 3

8. a)   Write a Program that takes a number input and prints that number in binary and hexadecimal format.

    b)   What is the difference between the interface and abstract class ?

    c)   What is auto boxing ?

    d)   What are the advantages of the vector class ?

                               7 + 3 + 2 + 3

9. a)   What is thread ? How to create a thread in Java ?

    b)   What is need of the synchronized block ? Illustrate with an example.

    c)   How to override the toString function ?

                              (2 + 2) + 7 + 4

10. a)   Write a program that stores information in the array and then sort the array.

    b)   What is the difference between the character stream and byte stream ?

    c)   How does java garbage collector work ?

d) What is the object serialization in Java ? Illustrate with an example.   4 + 3 + 3 + 5

11. Write short notes on any *three* of the following :   3 × 5

    a)   String Tokenizer.

    b)   Vector Class ,

    c)   Wrapper Class.

    d)   Command-line Arguments

    e)   Abstract Class.

—————

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MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
Paper Code : BCAE-602B
OBJECT ORIENTED PROGRAMMING WITH JAVA

Time Allotted : 3 Hours   Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :   10 × 1 = 10

   i) Which of the following may be part of a class definition ?
       a) Instance variables   b) Instance methods
       c) Constructors   d) All of these.

   ii) How many Default Constructors can a class have ?
       a) One   b) Two
       c) More than two   d) None of these.

   iii) An exception is
       a) a run time error   b) a compile time error
       c) a syntactical error   d) none of these.

   iv) Full form of JVM is
       a) Java Visual Machine
       b) Java Virtual Machine
       c) Java Variable Management
       d) None of these.

v) Consider the following program :
```
import java.io.* ;
public class TestClass{
    public static void main (String[ ] args) {
        // Method Body

    }
}
```
What should be the name of the program ?
a) TestClass.class b) TestClass.java
c) TestClass.obj d) None of these.

vi) Consider the following statements :
int a=5, b=6 ;
int y=(a < b) ? (b --) : (a --) ;
What should be the value of y after the execution of the above statements ?
a) 5 b) 6
c) Compile time error d) Run time error.

vii) JRE stands for
a) Java Runtime Environment
b) Java Resource Environment
c) Java Runtime Entity
d) None of these.

viii) What invokes a thread's run( ) method ?
a) JVM invokes the thread's run( ) method when the thread is initially executed
b) Main application running the thread
c) start( ) method of the thread class
d) None of these.

ix) When does the finally block get executed ?
a) Always when try block get executed, no matter exception occurred or not
b) Only when exception occurs in try block code.
c) Always when a method get executed, no matter exception occured or not
d) Always when a try block get executed, if exception do not occur.

x) Which class cannot be initialized ?
   a) Abstract   b) Final
   c) Public   d) Protected.

xi) Which of the following is not supported in Java ?
   a) Multilevel Inheritance
   b) Multiple Inheritance
   c) Hierarchical Inheritance
   d) None of these.

xii) Consider the following code segment :

```
class Test {
        int x = 10 ;
        public static void main (String[ ] args ) {
            Test t = new Test( ) ;
            System.out.println(t.x) ;
        }
}
```

What should be the output of the above code ?
   a) 10   b) 0
   c) Run time error   d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. Discuss the features of Java with respect to object oriented programming. What is 'byte code' ?   4 + 1

3. Give difference between overloading and overriding of methods in Java. State the use of 'super' keyword. 4 + 1

4. Differentiate between final, finally and finalize in Java.

5. How multilevel inheritance is done in Java ? Show with example and show calling sequence of constructors.

                                        3 + 2

6. Why main function is declared as static ? What do you mean by abstract class and abstract method ?   1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. a) What is a package ? Explain the different access controls for packages in Java.

   b) What is Unicode ? Explain the advantage of using Unicode.

   c) Explain operators with reference to Java. Explain two dimensional array with example.

                                       (2 + 3) + 2 + (3 + 5)

8. a) Briefly explain the Applet life cycle.

   b) What are the main differences between Java application & Java applet ?

   c) Write an applet program where you may input two numbers and get the result of the product of those two numbers.   6 + 4 + 5

9. a) Explain the concept of JVM.

   b) Explain abstraction of object-oriented programming.

   c) Write a program in Java to check whether a number (taken as user input) is an Armstrong number or not.   5 + 5 + 5

10. a) What is the difference method overloading and method overriding ?

   b) Write a program in Java to print the Fibonacci series up to the limit taken as user input.

   c) Write a program in Java to input a number and check whether it is a perfect number or not.

                                         5 + 5 + 5

11. Write short notes on any *three* of the following :   3 × 5

   a) Abstract class

   b) OOP principles

   c) Interface

   d) ByteCode

   e) Method Overriding.