

Government College of Engineering, Amravati
(An Autonomous Institute of Government of Maharashtra)

Third Semester B. Tech. (CS/ IT)

Summer Term- 2016

Course Code: CSU301

Course Name: Programming Methodology

Time: 2 hr. 30min.

Max. Marks: 60

Instructions to Candidate

- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary and clearly state the assumptions made.
- 3) Diagrams/sketches should be given wherever necessary.
- 4) Figures to the right indicate full marks.

Q.1 Solve the following.

(a) Explain java compilation cycle. 4

(b) Differentiate between: 6

(i) Applet and Application

(ii) Procedural and Object oriented language

(c) State how explicit type conversion takes place in java. 2

Q.2

Solve any two of the following.

12

- (a) Write a program to find transpose of matrix.
- (b) Write a program to check whether given number is Armstrong number or not.
- (c) Write a program to sort array elements in ascending order.

Q.3

Solve any two of the following.

12

- (a) With proper syntax explain following methods.
 - (i) drawRoundRect()
 - (ii) drawArc()
 - (iii) setBound()
- (b) Explain TextField class with its constructors and methods.
- (c) Write a program to handle mouse events.

Q.4

Solve the following.

12

- (a) Explain Adapter classes in details.
- (b) Explain following methods
 - i) regionMatches()
 - ii) subString()
 - iii) valueOf()

- (a) With suitable example explain keywords ‘throw’ and ‘throws’.
- (b) What is stream? Explain DataInputStream and DataOutputStream.
- (c) Give java statement for each of the following.
 - i) Create Frame object and place MenuBar on it.
 - ii) Create Menus File,Edit,Exit and attach it to MenuBar in step (i)
 - iii) When ‘Exit’ button is clicked Frame should close .

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- 6) (Other special instruction, if any)

1 Solve:

- a) Why Java is
 i. Object oriented Language
 ii. Platform Independent Language.
- b) List out various component of Java application program and explain each in detail with dia. 4
- c) What is an object program? Why object code should be linked with the routines? 4

2 Solve:

- a) Write a program to replace every vowel in a given sentence with “X” using string buffer class. 4

Contd

[OR]

- b) Explain applet Life Cycle with neat diagram. 4
- c) Write a program that will print out all the multiple of 3 from 3 to 36. 4
- d) Explain the difference between String and String buffer class. 4

3 **Solve any two:**

- a) What is an interface? In which situation it is useful? Explain it with example. 6
- b) What is meant by dynamic array? What is the advantage of a dynamic array over a regular array? 6
- c) Explain Java delegation based event model. Why it is called as delegation based event model. 6

4 **Solve any two:**

- a) Write an Applet which reads two integer values from the text field and perform the addition, subtraction, division and multiplication on that integer values. Use buttons to perform operation. 6
- b) Write an application to create “File” Menu with menu item – Open, “Edit” Menu with menu item – Cut, Copy & Paste and perform the cut copy operation with the help of Text field. 6
- c) Explain how exception are handled in Java via try, catch, throw, throws, and finally. 6

5 **Solve:**

- I) JVM is platform independent
A) True
B) false

12

- II**) What are the pillars of oops concept?
A) Abstraction, Inheritance, Encapsulation, Polymorphism
B) Atomicity, Inheritance, Encapsulation, Polymorphism
C) Abstraction, Inheritance, Polymorphism
D) None of the Above.
- III**) Which one of the following methods keeps the Thread t in run state ?
a) t.start() b) t.run() c) t.setRun()
d) t.stop() e) none
f) When a thread is instantiated, it comes automatically into run state.
- IV**) What is the width of the line that drawLine() method draws?
a) 1 pixel b) 2 pixel c) 3 pixel d) 4 pixels d) none
- V**) Which of the following is used to interpret and execute applet classes hosted by HTML
a) appletviewer b) appletshow
c) appletscreen d) appletwatcher
- VI**) Which is valid declaration of a float?
a) float f=1F;
b) float f=1.0;
c) float f="1";
d) float f=1.0d;
- VII**) Character data type cannot store following value-
a) Digit b) Letter c) String d) Special character
- VIII**) Which of these exceptions is thrown when file specified for writing is not found?
a) IOException

- b) FileException
- c) FileNotFoundException
- d) FileInputStream

IX

Which of these file is used to write into a file?

- a) Put()
- b) putFile()
- c) write()
- d) writeFile()

X

What is the output of this code?

```
import java.io.*;
class fileinputoutput{
    public static void main(String args[ ]){
        InputStream obj= new
        InputStream("inputoutput.java");
        System.out.print(obj.available());
    }
}
```

- a) true
- b) false
- c) prints number of bytes in file
- d) prints number of characters in file

XI

Which of these values is returned by read() method when end of file (EOF) is encountered?

- a) 0
- b) 1
- c) -1
- d) Null

XII

A collection of methods with no implementation is called-

- a) Polymorphism
- b) Inheritance
- c) Interface
- d) None of the above

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1. Solve

4

- (a) Give the major difference between an applet and application.
- (b) Explain the steps to run Java application and java applet and the tools used in each steps. **4**
- (c) 1) What is the output of the following program? **4**
- ```
public class Question {
 public static void main(String args[]) {
 String s1 = "abc";
 String s2 = "def";
 String s3 = s1.concat(s2.toUpperCase());
 System.out.println(s1+s2+s3);
 }
}
```

2) If you run the code below, what gets printed out?

```
String s=new String("Bicycle");
int iBegin=1;
char iEnd=3;
System.out.println(s.substring(iBegin,iEnd));
```

2. Solve Any Two

(a) What is output of following code

```
class PassA
{
 public static void main(String [] args)
 {
 PassA p = new PassA();
 p.start();
 }
 void start()
 {
 long [] a1 = {3,4,5};
 long [] a2 = fix(a1);
 System.out.print(a1[0] + a1[1] + a1[2] + " ");
 System.out.println(a2[0] + a2[1] + a2[2]);
 }
 long [] fix(long [] a3)
 {
 a3[1] = 7;
 return a3;
 }
}
```

(b) Can a constructor be declared as 'static'? Justify

your answer with an example.

In a Java class definition, a programmer has declared a constructor as 'private'. Is this permitted?

Justify your answer.

(c) Write a Java Application which compares the

6

6

system generated random number with user input.  
Display the message guess is "High" or "Low" or  
"Equal" depending upon the number inputted by  
user

3.

### Solve

- (a) How method overloading differs from method overriding ?Explain with an example 6

- (b) 1) Consider the following code sample: 3

```
class Tree{}
class Pine extends Tree{}
class Oak extends Tree{}
public class Forest
{
 public static void main(String[] args)
 {
 Tree tree = new Pine();
 if(tree instanceof Pine)
 System.out.println("Pine");
 if(tree instanceof Tree)
 System.out.println("Tree");
 if(tree instanceof Oak)
 System.out.println("Oak");
 else System.out.println("Oops");
 }
}
```

What is the output of given code

- 2) What is the output of this program? 3

```
import java.io.*;
class Chararrayinput {
 public static void main(String[] args) {
 String obj = "abcdef";
 int length = obj.length();
 char c[] = new char[length];
 obj.getChars(0, length, c, 0);
 CharArrayReader input1 = new
```

```
CharArrayReader(c);
CharArrayReader input2 = new
CharArrayReader(c, 0, 3);
int i;
try {
while((i = input2.read()) != -1)
{
System.out.print((char)i);
}
}
catch (IOException e)
{
e.printStackTrace();
}
}
4. }
```

### Solve Any Two

4. (a) What is mean by delegation event model? Write a 6 program to find the root of quadratic equation by this model.
- (b) Write an application to design a frame having 6 buttons “OK” and “Cancel” and one text field. Change the title of frame depending upon which button is clicked and if text field is used to generate an event then set the data of text field as a title of frame.
5. (c) How multiple inheritance is achieved in Java? 6 Explain with an example

### Solve

- (a) What is the constructor associated with the File 6 Dialog Object? List out and explain the methods of this Object used to get the name of selected filename and directory.

(b) Solve

1) What is the output of this program? 3

```
class exception_handling {
 public static void main(String args[]) {
 {
 try {
 {
 System.out.print("Hello" + " " + 1 / 0);
 }
 catch(ArithmeticException e) {
 {
 System.out.print("World");
 }
 }
 }
 }
}
```

2) What is the output of this program?

```
class exception_handling {
 public static void main(String args[]) {
 try {
 int a, b;
 b = 0;
 a = 5 / b;
 System.out.print("A");
 }
 catch(ArithmeticException e) {
 System.out.print("B");
 }
 finally {
 System.out.print("C");
 }
 }
}
```

B

C

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**1. Solve**

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**(a) Give the major difference between an applet and application.**

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**4**

**(c) 1)What is the output of the following program?**

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 String s3 = s1.concat(s2.toUpperCase());
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 }
}
```

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*Contd*

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```
String s="new String("Bicycle");
int iBegin=1;
char iEnd='3';
System.out.println(s.substring(iBegin,iEnd));
```

Solve Any Two

2. What is output of following code

(a) class PassA  
{  
 public static void main(String [] args)  
 {  
 PassA p = new PassA();  
 p.start();  
 }  
 void start()  
 {  
 long [] a1 = {3,4,5};  
 long [] a2 = fix(a1);  
 System.out.print(a1[0] + a1[1] + a1[2] + " "  
 System.out.println(a2[0] + a2[1] + a2[2]);  
 }  
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 {  
 a3[1] = 7;  
 return a3;  
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(b) Can a constructor be declared as 'static'? Justify your answer with an example.

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What is the output of given code

- 2) What is the output of this program? 3

```
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 String obj = "abcdef";
 int length = obj.length();
 char c[] = new char[length];
 obj.getChars(0, length, c, 0);
 CharArrayReader input1 = new
```

Contd..

Solve

1) What is the output of this program?

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class exception_handling {
 public static void main(String args[])
 {
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 {
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 }
 catch(ArithmeticException e)
 {
 System.out.print("World");
 }
 }
}
```

2) What is the output of this program?

```
class exception_handling {
 public static void main(String args[])
 {
 try
 {
 int a, b;
 b = 0;
 a = 5 / b;
 System.out.print("A");
 }
 catch(ArithmeticException e)
 {
 System.out.print("B");
 }
 finally
 {
 System.out.print("C");
 }
 }
}
```

```
CharArrayReader(c);
CharArrayReader input2 = new
CharArrayReader(c, 0, 3);
int i;
try {
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{
System.out.print((char)i);
}
}
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5. (a) What is mean by delegation event model? Write a 6 program to find the root of quadratic equation by this model.
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