

B. N. BANDODKAR COLLEGE OF SCIENCE, THANE

T.Y.B.Sc PRELIMINARY EXAMINATION, FEB 2011

Duration: 3 hours

Total marks: 60

APPLIED COMPONENT I

SECTION I

(SSAD AND NETWORKING)

1. (a) Answer any **two** of the following questions: (6)
- (i) What is System? What are its characteristics?
 - (ii) What are the qualifications required to become a system analyst?
 - (iii) Write a note on Decision tree. Give an example.
- (b) Write a short note on System Development Life Cycle method. (4)

OR

1. (p) Answer any **two** of the following questions: (6)
- (i) Write a note on Economic Feasibility.
 - (ii) Explain briefly Data dictionary.
 - (iii) Discuss the advantages and shortcomings of interviews as a fact finding technique.
- (q) Create a Decision tree based on the following information: (4)
- Book stores get a trade discount of 25% for the orders of books 6 or more and for less than 6 books no discount. For orders from libraries and individuals, 5% allowed on orders of 6-19 copies per book title; 10% on orders for 20-49 copies per book title; 15% on orders for 50 copies or more per book title.
2. (a) Answer any **two** of the following questions: (6)
- (i) State the different layers of the OSI model.
 - (ii) Distinguish between LAN and WAN.

(iii) Explain the application layer of TCP/IP model.

(b) Discuss briefly Connection-oriented and Connectionless Services. (4)

OR

2. (p) Answer any **two** of the following questions: (6)

(i) Define the following terms with respect to Networking:
Service, Protocol, Network architecture.

(ii) What is multiplexing? Explain FDM.

(iii) Explain circuit switching technique.

(q) List two ways in which OSI and TCP/IP models are same and two ways in which they are different. (4)

SECTION II

(JAVA PROGRAMMING)

4

a) Answer any **three** of the following questions: (6)

(i) What is type casting? Give an example to explain it.

(ii) What is encapsulation? How does Java achieve encapsulation?

(iii) Correct the following Java code:

```
{ int x=10;  
y=20;  
if(x ≠ y)  
System.out.println("x ≠ y"); }
```

(iv) Write a note on Boolean data type.

(b) Write a Java program to define a class called Matrix containing main() method to (4)

display 3 x 3 matrix.

OR

4. (p) Answer any **three** of the following questions:

(6)

(i) State one difference between class and object.

(ii) Explain the switch() statement in Java.

(iii) How do you declare an array in Java? Explain with an example.

(iv) The following is a segment of a program:

```
x = 1;
```

```
y = 1;
```

```
if ( n > 0 )
```

```
    x = x+1;
```

```
    y=y+1;
```

What will be the values of x and y if

(1) n = 1

(2) n = 0.

(q) Write a java program containing main() method that will accept a positive integer

(4)

and check whether it is a prime number and display the same.

5. (a) Answer any **three** of the following questions:

(6)

(i) What is the difference between a method and a constructor?

(ii) Explain the keyword new.

(iii) What is method overloading? Give an example.

(iv) Explain the use of finalize() method.

- (b) Create a class called ABC containing a method that calculates and prints the area of rectangle with l and b as its parameters. l and b are the length and breadth of the rectangle. (4)

Overload this method by a method that finds and prints the area of a triangle having a,b,c as its parameters. a,b,c are the three sides of the triangle.

Create a class CBA containing the main() method. Define two objects of the above class. One to display the area of a rectangle and the other to display the area of a triangle.

Area of a rectangle is $l * b$. Area of a triangle is $\sqrt{s(s-a)(s-b)(s-c)}$ where $s = (a + b + c)/2$.

OR

5. (p) Answer any **three** of the following questions:

(6)

(i) State whether the following statement is true or false with justification:

“when a reference variable is assigned to another reference variable, another copy of object is created.”

(ii) Explain the various ways in which the keyword super can be used.

(iii) What is method over riding? How can we prevent a method from getting over ridden?

(iv) Correct the errors in the following Java code, where x is an instance variable and square() is a method.

```
class Test{  
  
    public static void main(String args[]){  
  
        int d;  
  
        x = 16;  
  
        square(x) = d;  
  
        System.out.print(d);  
  
    }  
}
```

```
}
```

(q) Find the output of the following by explaining each step that is executed.

(4)

```
class A{
    int a,b;
    A(int a, int b){
        this.a = a;
        this.b = b;
    }
    int sum(){
        return (a+b);
    }
}

class B{
    public static void main(String args[]){
        int x;
        A obj = new A(4,3);
        System.out.print(obj.a);
        System.out.println(obj.b);
        x = obj.sum();
        System.out.print(x);
    }
}
```

6. (a) Answer any **three** of the following questions:

(6)

(i) What do you understand by an abstract class?

(ii) What is an applet? How do applets differ from application programs?

(iii) Write a java applet to print "TYBSc" in red color at (50,70) position.

(iv) State one difference between method overloading and method overriding.

(b) Write a program in Java to define a method that initializes the x coordinate and y coordinate of two points in the super class and finds the distance between the points in the sub class. Also define a class containing the main() method to invoke these methods and display the distance. (4)

OR

6. (p) Answer any **three** of the following questions:

(6)

(i) Explain destroy() method, a stage in the life cycle of an applet.

(ii) What is the major difference between an interface and a class?

(iii) Write a method to fill a rectangle with red color.

(iv) When can a method in super class be prevented from being overridden by a method in sub class? Explain by an example.

(q) Create a class called Shape as base class having two methods:

(4)

setCoord() to accept length and breadth and

showCoord() to display length and breadth.

Create a subclass called Rectangle that contains a method findarea() to display the area of rectangle.

Create a class called Demo containing main() method to execute above methods by creating object of class Rectangle.

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