Mid-Semester Examination
PROGRAMMING TOOLS & TECHNIQUES
School of Computer Engineering
KIIT University, Bhubaneswar-24

Time: 2hrs   *Full Mark:25*

(Answer any five questions including question No.1 which is compulsory.
The figures in the margin indicate full marks.)

1) **Write Short Answers**   [1 × 5]
   a) " To develop effective algorithm, there is a need of studying a variety of programming languages", Justify.
   b) Write down the HTML code to display the table given below

A	B	
	C	D

   c) Explain the functionality of following tags with suitable example
          <sub>,<hr>,<h5> and <meta>
   d) Write down the output. And if the code has error, then write down the reasons.

```
class X{
        public static void main(String a[ ]){
                boolean p[ ]=new boolean[2];
                X [ ] q=new X[2];
                System,out,println(p[0]);
                System,out,println(q[1]);
        }
}
```

   e) Write down the output. And if the code has error, then write down the reasons.

```
class X{

        int fun1( ){
                int y=10;
                return y;
        }
        public static void main(String a[ ]){
                System.out.println(fun1());
        }
}
```

2)   [2.5 × 2]
   a) Discuss the characteristics of good programming language.
   b) Create your personal web page using HTML with following fields –

Name	-Textbox
Address	-TextArea
Qualification	- Select Option
Gender	- RadioButton (Male and Female)
Hobbies	- CheckBox
Submit	-Submit Button

3)   **[5]**

Design the following *frame* in html. Whenever the user clicks on any of the links in the left frame; a description page describing the links is displayed in the right frame.

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Hard work, willpower & dedication.
For a person with these qualities, the sky is the limit.

4)   **[2.5 × 2]**

a) Define a class Triangle having instance variables side1,side2 and side3. Include the following methods:
     (i)void setDim(float,float,float) is used to initialize the instance variables
     (ii)boolean isTriangle() is used to check whether the sides are valid for triangle or not.
     (iii)float find_area() is used to calculate the area of triangle.
     Within find_area() method , isTriangle() method is called and if it returns true then area is calculated otherwise suitable error message has to be displayed. Implement the necessary java code to test the functionality of Triangle class.
 b) Discuss on the different language design paradigms.

5)   **[2.5 × 2]**

   a) Define a class Shape where find_area() method is overloaded with one, two and three parameters. And find_area() with one, two and three parameters are defined to calculate the area of circle, rectangle and triangle respectively. Implement the necessary java code to test the functionality of Shape class.
   b)Using for each loop write a java program which will accept the size of an integer   array and it's elements from the user and display the average .

6)   **[2.5 × 2]**

   a)Explain the relationship among JVM,JRE and JDK. What role is played by JVM to make java as a platform independent language?
   b)Define a class Complex having instance members numerator and denominator. Include   default and parameterized constructor and also the following methods:
   (i)Complex add(Complex) is used to add two complex objects.
   (ii)boolean isEqual(Complex) is used to check whether two complex objects are equal or not.
   (iii)void show( ) is used to display the complex object.
   Implement the necessary java code to test the functionality of Complex class.

7)Write short notes(Any two)   **[2.5 × 2]**
        a)this keyword and it's application
        b)Unordered list
        c)Inner class
        d)Features of Java language