



# **UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

## **PEPERIKSAAN AKHIR SEMESTER I SESI 2009/2010**

NAMA MATA PELAJARAN : PENGATURCARAAN JAVA  
KOD MATA PELAJARAN : BIT 3383  
KURSUS : 3 BIT  
TARIKH PEPERIKSAAN : NOVEMBER 2009  
JANGKA MASA : 3 JAM  
ARAHAN : JAWAB SEMUA SOALAN.

KERTAS SOALAN INI MENGANDUNGI SEBELAS (11) MUKA SURAT

Instruction: Answer **ALL** questions.

**Q1** Explain each of the following terms with an appropriate example:

(a) Method Overloading

(4 marks)

(b) Constructor

(4 marks)

(c) Mutator Method

(4 marks)

**Q2** (a) What are the methods used to create input and output dialog boxes?

(2 marks)

(b) What is the name of the class that contains the methods to create dialog boxes?

(2 marks)

(c) Write a Java code to create:

- i. An input dialog box
- ii. A message dialog box

(4 marks)

**Q3** Write the output of the following Java program:

```
public class Test {
    public static void main(String args[]) {
        int x = 6;
        int y = 13;

        System.out.println(++y);
        System.out.println(y++);
        System.out.println(x > y);
        System.out.println(x - y);
    }
}
```

(4 marks)

Q4 Suppose that the input is:

5 3 8

What is the output of the following code? Assume all variables are properly declared.

```
a = console.nextInt();
b = console.nextInt();
c = console.nextInt();
for (j = 1; j < a; j++)
{
    d = b + c;
    b = c;
    c = d;
    System.out.println(c + " ");
}
```

(4 marks)

Q5 A program contains the following method:

```
public static void display(int arg1, double arg2, char arg3)
{
    System.out.println("The value are " + arg1 + ", " + arg2 +
        ", and " + arg3); }

```

(a) Write a statement that invokes the above method and passes the following variables as arguments:

```
char initial = 'T';
int age = 25;
double income = 5000.00;
```

(2 marks)

(b) What is the output if the above method is invoked?

(3 marks)

Q6 Given the following if statement:

```
if (a == 1)
    x += 5;
else if (a == 2)
    x += 10;
else if (a == 3)
    x += 16;
else if (a == 4)
    x += 34;
```

(a) Use a switch statement to rewrite the above if statement.

(6 marks)

(b) Draw a flowchart for the above if statement.

(8 marks)

Q7 Consider the following class definition:

```
public class Final
{
    private int x;
    private int y;
    private int z ;

    public Final()
    {} //Line 1
    public Final(int a)
    {} //Line 2
    public Final(int a, int b)
    {} //Line 3
    public Final(int a, int b, double d)
    {} //Line 4
}
```

- (a) Write the definition of the constructor in Line 1 so that the instance variables are initialized to 0. (5 marks)
- (b) Write the definition of the constructor in Line 2 so that the instance variable *x* is initialized according to the value of the parameter, and the instance variable *y* and *z* are initialized to 0. (5 marks)
- (c) Write the definition of the constructor in Line 3 so that the instance variable *x* and *y* are initialized according to the values of the parameter *a* and *b*, respectively and the instance variable *z* is initialized to 0.0. (5 marks)
- (d) Write the definition of the constructor in Line 4 so that the instance variable *x*, *y* and *z* are initialized according to the values of the parameter *a*, *b* and *d*, respectively. (5 marks)

Q8 Given the following class definition:

```
public class Rectangular
{
    private double length;
    private double width;

    public Rectangular()
    {
        length = 0 ;
        width = 0; }

    public double area()
    {
        return length * width; }
}
```

```

public class Box extends Rectangular
{
    private double height;

    public Box()
    { // Set the instance variables to 0}
    public double volume()
    { // Returning the Multiplication of all the instance
    //variables}
    }
}

```

- (a) Write the definition for the constructor of **class** Box. (4 marks)
- (b) Write the definition of the method `volume()` of the **class** Box. (4 marks)

Q9 Given the following Java program to convert a distance in kilometer to meter:

```

public class KiloConverter extends JFrame implements ActionListener
{
    private JPanel panel;
    private final int width = 310;
    private final int height = 150;
    private int kilo, meter;

    public KiloConverter()
    {
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        buildPanel();
        add(panel);
        setVisible(true);
    }

    private void buildPanel()
    { panel = new JPanel();
      panel.add(msgLabel);
      panel.add(kiloTextField);
      panel.add(calcButton);
      panel.add(msgLabel2); }

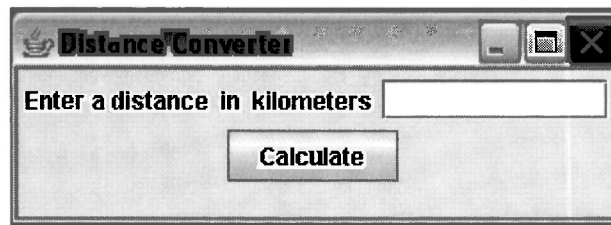
    public void actionPerformed(ActionEvent e)
    { }

    public static void main(String args[])
    { }

}

```

The output of the program is as described in **Figure Q9**.



**Figure Q9**

Rewrite the `class KiloConverter` by completing the following missing code lines:

- i. Declaration of the instance variables for text field, button and labels.
- ii. Statements to set the title and size of the display window.
- iii. Statements in the method `buildPanel()` to display the text field and button as described in **Figure Q9**.
- iv. Statements in the method `buildPanel()` for the program to response to any action occurred on the text field and button.
- v. Definition for the method `actionPerformed()` which obtains input from text field and converts the input from kilometer to meter.
- vi. Definition for the method `main()`.

(20 marks)

Arahan: Jawab **SEMUA** soalan.

S1 Jelaskan setiap terma berikut dengan memberikan satu contoh yang bersesuaian:

(a) Method Overloading (4 markah)

(b) Constructor (4 markah)

(c) Mutator Method (4 markah)

S2 (a) Apakah metod yang digunakan untuk mencipta kotak dialog? (2 markah)

(b) Apakah nama kelas yang mengandungi metod kotak dialog? (2 markah)

(c) Tuliskan kod Java untuk mencipta:

iii. Kotak dialog input

iv. Kotak dialog mesej

(4 markah)

S3 Tuliskan output bagi program Java berikut:

```
public class Test {  
    public static void main(String args[]) {  
        int x = 6;  
        int y = 13;  
  
        System.out.println(++y);  
        System.out.println(y++);  
        System.out.println(x > y);  
        System.out.println(x - y);  
    }  
}
```

(4 markah)

S4 Katakan suatu input terdiri daripada:  
5 3 8

Apakah output untuk kod berikut? Anggapkan semua pembolehubah telah diisytiharkan.

```
a = console.nextInt();
b = console.nextInt();
c = console.nextInt();
for (j = 1; j < a; j++)
{
    d = b + c;
    b = c;
    c = d;
    System.out.println(c + " ");
}
```

(4 markah)

S5 Satu program Java mengandungi metod berikut:

```
public static void display(int arg1, double arg2, char arg3)
{
    System.out.println("The value are " + arg1 + ", " + arg2 +
        ", and " + arg3); }

```

(a) Tuliskan pernyataan untuk memanggil metod di atas and menghantar pembolehubah berikut sebagai argumen:

```
char initial = 'T';
int age = 25;
double income = 5000.00;
```

(2 markah)

(b) Apakah output jika metod di atas dipanggil dalam metod main() ?

(3 markah)

S6 Diberi pernyataan if berikut:

```
if (a == 1)
    x += 5;
else if (a == 2)
    x += 10;
else if (a == 3)
    x += 16;
else if (a == 4)
    x += 34;
```

(a) Tuliskan semula pernyataan if di atas kepada pernyataan switch.

(6 markah)

(b) Lukiskan flowchart untuk pernyataan if di atas.

(8 markah)



S7 Diberi definisi kelas seperti berikut:

```
public class Final
{
    private int x;
    private int y;
    private int z ;

    public Final()
    {} //Line 1
    public Final(int a)
    {} //Line 2
    public Final(int a, int b)
    {} //Line 3
    public Final(int a, int b, double d)
    {} //Line 4
}
```

- (a) Tuliskan definisi untuk konstruktor pada Line 1 supaya semua pembolehubah diumpukkan kepada 0. (5 markah)
- (b) Tuliskan definisi untuk konstruktor pada Line 2 supaya pembolehubah  $x$  diumpukkan kepada nilai parameter, pembolehubah  $y$  dan  $z$  diumpukkan kepada 0. (5 markah)
- (c) Tuliskan definisi untuk konstruktor pada Line 3 supaya pembolehubah  $x$  dan  $y$  diumpukkan kepada nilai parameter  $a$  dan  $b$ , dan pembolehubah  $z$  diumpukkan kepada 0.0. (5 markah)
- (d) Tuliskan definisi untuk konstruktor pada Line 3 supaya pembolehubah  $x$ ,  $y$  dan  $z$  diumpukkan kepada nilai parameter  $a$ ,  $b$  dan  $d$ . (5 markah)

S8 Diberi definisi kelas berikut:

```
public class Rectangular
{
    private double length;
    private double width;

    public Rectangular()
    {
        length = 0 ;
        width = 0; }

    public double area()
    {
        return length * width; }
}
```

```

public class Box extends Rectangular
{
    private double height;

    public Box()
    { // Set the instance variables to 0}
    public double volume()
    { // Returning the Multiplication of all the instance
    //variables}
    }
}

```

- (a) Tuliskan definisi konstruktor untuk kelas Box. (4 markah)
- (b) Tuliskan definisi metod volume () untuk kelas Box. (4 markah)

S9 Diberi program Java berikut untuk menukar jarak dalam kilometer kepada meter:

```

public class KiloConverter extends JFrame implements ActionListener
{
    private JPanel panel;
    private final int width = 310;
    private final int height = 150;
    private int kilo,meter;

    public KiloConverter()
    {
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        buildPanel();
        add(panel);
        setVisible(true);
    }

    private void buildPanel()
    { panel = new JPanel();
      panel.add(msgLabel);
      panel.add(kiloTextField);
      panel.add(calcButton);
      panel.add(msgLabel2); }

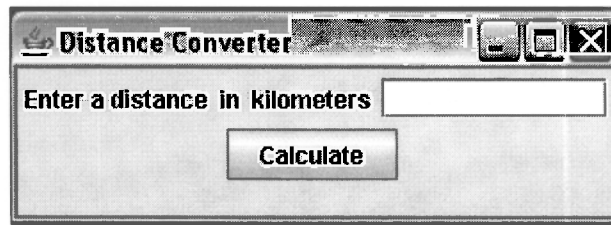
    public void actionPerformed(ActionEvent e)
    { }

    public static void main(String args[])
    { }

}

```

Output program adalah seperti dalam **Rajah S9**.



**Rajah S9**

Tulis semula definisi kelas `KiloConverter` dengan melengkapkan bahagian kod yang berikut:

- i. Pengisytiharan pembolehubah-pembolehubah untuk ruang teks, butang dan label.
- ii. Penyataan untuk menetapkan tajuk dan saiz tettingkap paparan.
- iii. Penyataan dalam metod `buildPanel()` untuk memaparkan ruang teks dan butang seperti dalam **Rajah S9**.
- iv. Penyataan dalam metod `buildPanel()` untuk program memberi respons kepada sebarang tindakan yang berlaku ruang teks dan butang.
- v. Definisi untuk metod `actionPerformed()` yang mendapat input daripada ruang teks dan menukarkan kilometer kepada meter.
- vi. Definisi untuk metod `main()`.

(20 markah)