

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR
SESI DISEMBER 2017

DFT4024 : OBJECT ORIENTED PROGRAMMING

TARIKH : 31 MAC 2018
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **DUA PULUH TIGA (23)** halaman bercetak.

Bahagian A: Objektif (30 soalan)

Bahagian B: Struktur (2 soalan)

Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

the first time in 1994. In 1995, the first
of the new buildings was completed.
The new building is a modern
and spacious facility with a large
auditorium, a library, a computer room,
and a meeting room. The new
building is located in the center of the
campus and is easily accessible by
bus or car. The new building is
a modern and spacious facility with a large
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building is located in the center of the
campus and is easily accessible by
bus or car.

SECTION A: 45 MARKS**BAHAGIAN A: 45 MARKAH****INSTRUCTION:**

This section consists of **THIRTY (30)** objective questions. Mark your answers in the OMR form provided.

ARAHAN:

Bahagian ini mengandungi **TIGA PULUH (30)** soalan objektif. Tandakan jawapan anda di dalam borang OMR yang disediakan.

CLO1
C1

1. Select the **CORRECT** statement about an object.

*Pilih pernyataan yang **BETUL** bagi menerangkan tentang objek.*

- A. An object is a data of a class.
Objek adalah data untuk kelas.
- B. An object is the blue print for a class.
Objek adalah acuan kepada sesuatu kelas.
- C. An object is an instance of a class.
Objek adalah kejadian kepada sesuatu kelas.
- D. An object is a method of a class.
Objek adalah kelakuan kepada kelas.

CLO1
C1

2. Which of the following terminology is used to describe the data component in UML class diagram?

Manakah di antara istilah berikut digunakan untuk menerangkan komponen data di dalam rajah kelas UML?

- A. Attribute
Atribut
- B. Method
Kaedah
- C. Object
Objek
- D. Class
Kelas

- CLO1 C1 3. Identify which of the following file is given as an input for Java Virtual Machine (JVM).

Kenalpasti di antara fail yang berikut, yang mana diberikan sebagai masukan bagi Java Virtual Machine (JVM).

- A. .java
- B. .class
- C. .obj
- D. .jar

- CLO1 C2 4. System.out.println("Welcome to Java!");

Choose the **BEST** anatomy for the statement above.
*Pilih anatomi **TERBAIK** tentang pernyataan di atas.*

- A. Code segment / *Keratan kod*
- B. Statement / *Pernyataan*
- C. Comment / *Komen*
- D. Reserved word / *Kata simpanan*

- CLO1 C1 5. If a list contains an array declared with char student [140], indicate the value of size when the list is full.

Jika saiz bagi tatasusunan yang diisytiharkan adalah 'char student [140]', tentukan nilai saiz tatasusunan apabila senarai telah penuh.

- A. 140
- B. 149
- C. 139
- D. 100

	6. Select the CORRECT keyword for constant in java programming. <i>Pilih kata kunci yang BETUL untuk nilai pemalar dalam bahasa pengaturcaraan Java.</i>
CLO1 C1	A. FINAL B. final C. CONSTANT D. constant
CLO1 C2	7. Identify the statement to create an object for a class name “MyClass”. <i>Kenalpasti pernyataan untuk mencipta objek untuk kelas “MyClass”.</i>
	A. MyClass mc = MyClass; B. MyClass mc = MyClass (); C. MyClass mc = new MyClass; D. MyClass mc = new MyClass ();
CLO2 C2	8. Identify the purpose of the else block in if-else statement. <i>Kenalpasti tujuan blok else dalam pernyataan if-else.</i>
	A. To contain the remainder of the code for a method. <i>Untuk mengisi lebihan kod pada metod.</i>
	B. To contain code that is executed when the expression in if statement is false. <i>Untuk mengisi kod yang dilaksanakan bila ungkapan dalam pernyataan if adalah tidak benar.</i>
	C. To test whether an expression is false. <i>Untuk menguji samada ungkapan adalah tidak benar.</i>
	D. To test statement and execute the expression. <i>Untuk menguji pernyataan dan melaksanakan ungkapan.</i>

- CLO2
C2 9. Choose the other way to write the code based on **Figure A1** below.
Pilih cara lain untuk menulis kod berdasarkan Rajah A1 dibawah.

```
BufferedReader stdin = new BufferedReader (new InputStreamReader
(System.in));
```

Figure A1/Rajah A1

- A. InputStreamReader stdin1 = new InputStreamReader (System.in);
BufferedReader stdin = new BufferedReader (stdin1);
- B. InputStreamReader stdin1 = new InputStreamReader (System.in);
BufferedReader stdin = new InputStreamReader (System.in);
- C. InputStreamReader stdin1 = new BufferedReader (System.in);
BufferedReader stdin = new InputStreamReader (System.in);
- D. InputStreamReader stdin1 = new BufferedReader (stdin);
InputStreamReader stdin = new InputStreamReader (System.in);

- CLO2
C2 10. Select the **VALID** statement to declare, construct, and initialize an array.
Pilih pernyataan yang SAH untuk mengisyihar, membina dan mengumpuk nilai bagi tatasusunan.
- A. int [] myList = (5,8,2);
 - B. int [] myList = [5,8,2];
 - C. int myList []= {5,8,2};
 - D. int [] myList = {"5","8","2"};

- CLO2
C3 11. Choose the **CORRECT** output for the code in **Figure A2**.
Pilih output yang BETUL bagi aturcara di dalam Rajah A2.

```
class Increment {
    public static void main(String args [ ]) {
        int g =3;
        System.out.println(++g * 8);
    }
}
```

Figure A2/Rajah A2

- | | |
|-------|-------|
| A. 25 | B. 24 |
| C. 32 | D. 23 |

- CLO3
C3 12. Analyze the code in **Figure A3** and choose the value return by `value.length` statement.
Analisis kod pada Rajah A3 dan pilih nilai yang dipulangkan daripada kenyataan `value.length`.

```
int values [ ] = { 1,2,3,4,5,6,7,8 };
for ( int i = 0; i < values.length; ++i )
    System.out.println ( values [i] );
```

Figure A3/ Rajah A3

- A. 1
- B. 7
- C. 8
- D. 9

- CLO1
C1 13. Identify the object-oriented technology that defines superclass and subclass.
Kenalpasti teknologi berorientasi objek yang mendefinisikan hubungan kelas super dan sub kelas.

- A. Inheritance / Perwarisan
- B. Encapsulation / Pengkapsulan
- C. Abstract / Abstrak
- D. Polymorphism / Polimorphism

- CLO1
C1 14. Identify the use of interface.
Kenalpasti kegunaan 'interface'.
- A. To model multilevel inheritance.
Untuk memodelkan pewarisan berperingkat
 - B. To have unrelated classes implement different methods (behaviours).
Untuk membolehkan kelas-kelas yang tidak berkaitan melaksanakan fungsi (kelakuan) berbeza
 - C. It allows classes, regardless of their locations in the class hierarchy, to implement different behaviours.
Ia membolehkan kelas-kelas, tidak mengira kedudukannya dalam hirarki kelas, untuk melaksanakan kelakuan berbeza

- D. To reveal an object's programming interface (functionality of the object) without revealing its implementation.
Untuk mendedahkan antaramuka (fungsi objek) objek dalam pengaturcaraan, tanpa mendedahkan perlaksanaannya.

- CLO1
C2 15. Assuming the following code is correct, select the **TRUE** statement regarding the code.

*Andaikan kod berikut adalah betul, pilih pernyataan yang **BENAR** mengenai kod berikut.*

“A extends B”

Figure A4/ Rajah A4

- A. A is a class and B is an interface
A adalah kelas dan B adalah antaramuka
- B. A is an interface and B is a class
A adalah interface dan B adalah kelas
- C. A and B are either both classes or both interface
A dan B sama ada kedua-dua kelas atau kedua-dua interface
- D. All combinations of A and B being classes and /or interfaces
Semua gabungan A dan B ialah kelas dan/atau interface

- CLO1
C2 16. Choose the **CORRECT** statement to define a legal abstract class.
*Pilih pernyataan yang **BETUL** untuk mendefinisikan kelas abstrak.*

- A. public abstract class Car{
 public abstract void carInfo();
}
- B. public class Car{
 public abstract void carInfo();
}
- C. public abstract Car{
 public abstract void carInfo();
}
- D. public class abstract Car{
 public abstract void carInfo();
}

CLO1

C2

17. Choose the **CORRECT** method from **Figure A5** that overrides another method in the superclass.

*Pilih metod yang **BETUL** dari Rajah A5 untuk mengatasi metod di dalam kelas super.*

```
public class OverA {  
    public void methodA(int i) {  
    }  
    public void methodB(int i) {  
    }  
    public static void methodC(int i) {  
    }  
    public static void methodD(int i) {  
    }  
}
```

```
public class OverB extends OverA {  
    public static void methodA(int i) {  
    }  
    public void methodB(int i) {  
    }  
    public void methodC(int i) {  
    }  
    public static void methodD(int i) {  
    }  
}
```

Figure A5 / Rajah A5

- A. methodA
- B. methodB
- C. methodC
- D. methodD

- CLO2 18. Which of this keyword can be used in subclass to call the constructor of superclass?
 C1 Kata kunci yang manakah boleh digunakan dalam subkelas untuk memanggil konstruktor kelas super?
 A. this
 B. super
 C. extent
 D. extends
- CLO2 19. Choose the **CORRECT** statement for abstract class.
 C1 Pilih pernyataan yang **BETUL** untuk kelas abstrak.
 A. An abstract class can have only abstract methods
Kelas abstrak hanya boleh mempunyai metod abstrak sahaja.
 B. An abstract class is any parent class with more than one child class.
Kelas abstrak adalah kelas asas dengan satu atau lebih kelas anak.
 C. An abstract class is class which cannot be instantiated.
Kelas abstrak adalah kelas yang tidak boleh cipta kejadian.
 D. An abstract class is class which can be instantiated.
Kelas abstrak adalah kelas boleh cipta kejadian.
- CLO2 20. Choose the **VALID** interface declaration using Java programming language.
 C2 Pilih pengisytiharan 'interface' yang **SAH** menggunakan bahasa pengaturcaraan Java.
 A. public interface Shape {}
 B. public class interface Shape {}
 C. public interface Shape {
 Shape obj1 = new Shape ();
 }
 D. public interface Shape {
 public void Draw() {
 System.out.println("Drawing Circle here");
 }
 }

CLO2
C2

21. Figure A10 shows a scenario that demonstrates the type of relationship between different classes in a banking related case study. Choose the type of relationship denoted by X and Y.

Rajah A10 menunjukkan satu senario yang menunjukkan tentang jenis hubungkait antara kelas yang berbeza di dalam satu kajian kes berkaitan dengan perbankan. Pilih jenis hubungkait yang diwakili dengan X dan Y.

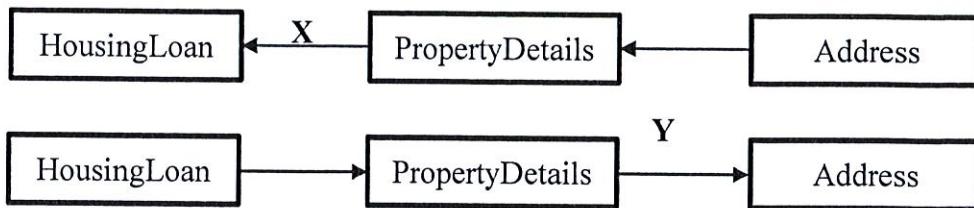


Figure A10 / Rajah A10

X Y

- | | | |
|----|----------------------|----------------------|
| A. | Is-A Relationship | Part-Of Relationship |
| B. | Part-Of Relationship | Has-A Relationship |
| C. | Has-A Relationship | Part-Of Relationship |
| D. | Part-Of Relationship | Is-A Relationship |

CLO2
C2

22. Choose the **CORRECT** statement for **Figure A6**.

*Pilih pernyataan yang **BETUL** untuk **Rajah A6**.*

```
public class Human{ }  
public class Family extends Human{ }  
public class Child extends Family{ }
```

Figure A6 / Rajah A6

- A. Class Human inherits class Family.
Kelas Human mewarisi kelas Family.
- B. Class Family inherits class Child.
Kelas Family mewarisi kelas Child.
- C. Class Child inherits class Human.
Kelas Child mewarisi kelas Human.
- D. Class Human inherits class Child
Kelas Human mewarisi kelas Child.

CLO2
C3

23. Identify the output of the following program.

Kenalpasti hasil bagi program berikut.

```
class A {  
    int i;  
  
    void display() {  
        System.out.println(i);  
    }  
}  
  
class B extends A {  
    int j;  
  
    void display() {  
        System.out.println(i*j);  
    }  
}  
  
class MethodOverloading {  
    public static void main(String args[]) {  
        B obj = new B();  
        obj.i=1;  
        obj.j=2;  
        obj.display();  
    }  
}
```

- A. 3
- B. 2
- C. 1
- D. Compile time error

CLO2
C3

24. A class Car and its subclass Yugo both have a method run() which was written by the programmer as part of the class definition. Choose the description of following code if junker refers to an object of type Yugo.

Kelas Car dan subkelas Yugo kedua-duanya mempunyai metod run() yang ditulis oleh pengaturcara sebagai sebahagian daripada definisi kelas. Pilih penerangan bagi pernyataan berikut sekiranya junker merujuk kepada objek jenis Yugo.

junker.show();

- A. The show() method defined in Yugo will be called.
- B. The show() method defined in Car will be called.
- C. The compiler will complain that run() has been defined twice.
- D. Overloading will be used to pick which run() is called

CLO2
C3

25. Examine the following code in **Figure A7** and determine the effect if the code in Line 13 is being executed.

Kaji kod pada Rajah A7 dan tentukan kesan yang akan berlaku jika kod pada baris ke 13 dilaksanakan.

```
class Vehicle{  
    void show()  
    { .... }  
}  
  
class Car extends Vehicle{  
    void show()  
    { .... }  
}  
  
class Car2{  
    public static void main(String args[]){  
        Car car1=new Car();  
        car1.show(); //Line 13 / Baris 13  
    }  
}
```

Figure A7/Rajah A7

- A. The show() method defined in *Car* will be called.
Fungsi 'show()' yang ditakrif dalam kelas 'Car' akan dipanggil.
- B. The show() method defined in *Vehicle* will be called.
Fungsi 'show()' yang ditakrif dalam kelas 'Vehicle' akan dipanggil.
- C. The compiler will complain that *show()* has been defined twice.
Pengkompil akan menyatakan bahawa fungsi 'run()' telah ditakrif sebanyak dua kali.
- D. Overloading will be used to pick which *show()* is called.
Konsep 'overloading' akan berlaku di mana akan berlaku pilihan perlaksanaan fungsi 'run()'.

CLO2
C3

26. Choose the **CORRECT** statement regarding all the reference variables a, b and c in **Figure A8**.

*Pilih pernyataan yang **BETUL** berkenaan semua pembolehubah rujukan a, b dan c pada Rajah A8.*

```
public interface Job {}  
public class Student {}  
public class FullTimeStudent extends Student implements Job{}  
public class Test{  
    public static void main(String arg [] ){  
        FullTimeStudent b = new FullTimeStudent();  
        Student a = new Student();  
        Object c = a;  
    }  
}
```

Figure A8 / Rajah A8

- A. A FullTimeStudent IS-A Student
A Student IS-A Object
- B. A Student IS-A FullTimeStudent
- C. A Student IS-A Object
- D. A Student IS-A FullTimeStudent
A FullTimeStudent IS-A Object

CLO3
C3

27.

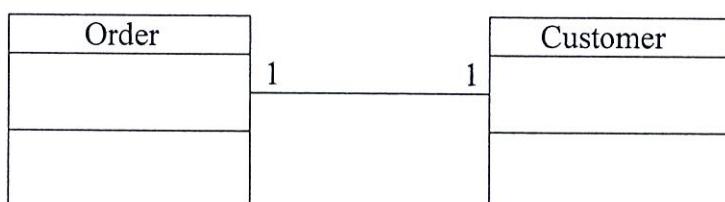
The relationship from an order to a customer is mandatory - every order must be associated with a customer. The relationship from customers to orders is optional - a customer does not need to have any orders.
Hubungan antara satu pesanan dengan seorang pelanggan adalah mandatori – setiap pesanan mesti dikaitkan dengan seorang pelanggan. Hubungan antara pelanggan dan pesanan adalah tidak diwajibkan – seorang pelanggan tidak perlu membuat sebarang pesanan.

Figure A9 / Rajah A9

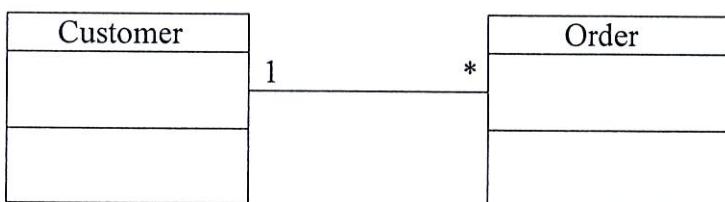
The scenario in **Figure A9** above describes the relationship between a customer and the orders he/she has placed with company XYZ. Illustrate the given scenario by representing the multiplicity of relationship in Class Diagrams.

Senario di dalam Rajah A9 di atas menerangkan tentang hubungan antara ‘Customer’ dan ‘Order’ yang dibuat ke atas syarikat XYZ. Berikan gambaran senario yang diberikan dalam bentuk ‘Class Diagram’.

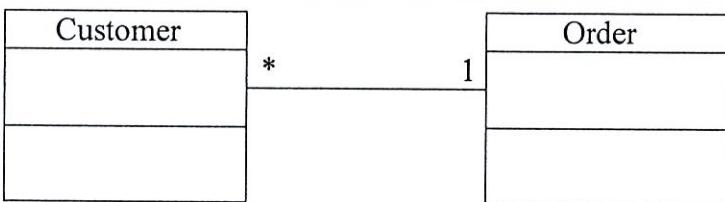
A.



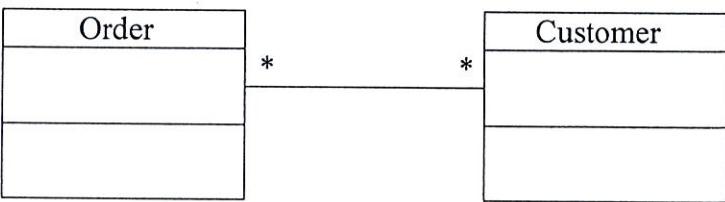
B.



C.



D.



- CLO1 28. Select the **INCORRECT** statement regarding multithreading.
 C2 *Pilih pernyataan yang **TIDAK BENAR** mengenai multithreading.*
- A. By multithreading, CPU's idle time is minimized and we can take maximum use of it.
Dengan multithreading, masa terbiar CPU dapat diminimumkan dan ia boleh digunakan sepenuhnya.
- B. By multitasking, CPU's idle time is minimized and we can take maximum use of it.
Dengan multitasking, masa terbiar CPU dapat diminimumkan dan ia boleh digunakan dengan sepenuhnya.
- C. Two threads in Java can have same priority.
Dua thread dalam Java boleh mempunyai keutamaan yang sama.
- D. A thread can exist only in two states, running and blocked.
Satu thread hanya boleh wujud dalam dua keadaan, 'running' dan 'blocked'.
- CLO2 29. Predict the output of the program in **Figure A10**.
 C3 *Ramalkan output bagi program di Rajah A10*
- ```
public class Foo {
 public static void main(String[] args) {
 try {
 { return; }
 finally
 { System.out.println("Finally"); }
 }
 }
}
```
- Figure A10 / Rajah A10**
- A. Finally  
*“Finally”*
- B. Compilation fails.  
*Kompilasi gagal.*
- C. The code runs with no output.  
*Kod dilaksanakan tanpa output.*
- D. An exception is thrown at runtime.  
*Berlaku ralat masa larian.*

- CLO3  
C4
30. Examine the above code as shown in **Figure A11** and predict the output.  
*Uji kod seperti pada Rajah A11 dan jangkakan output.*

```
try {
 Integer number = new Integer("1");
 System.out.println("created a new Integer
instance");
}
catch (Exception e) {
 System.out.println("trouble in River City");
}
```

**Figure A11/Rajah A11**

- A. created a new Integer instance
- B. trouble in River City
- C. created a new Integer instance  
trouble in River City
- D. trouble in River City  
created a new Integer instance

**SECTION B : 55 MARKS**  
**BAHAGIAN B : 55 MARKAH**

## **INSTRUCTION:**

This section consists of **TWO (2)** structured questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi DUA (2) soalan berstruktur. Jawab SEMUA soalan.*

## QUESTION 1

SOALAN 1

- CLO1 a) State **FIVE (5)** importance of the Object-Oriented Analysis (OOAD) pattern.  
C1 Nyatakan **LIMA (5)** kepentingan corak Analisis Berorientasi Objek (OOAD).

[5 marks]

[5 markah]

- CLO1 b) State **TWO (2)** anatomy of the Java program with example.  
C1 Nyatakan **DUA(2)** anatomi program Java beserta contoh.

[5 marks]  
[5 markah]

- CL01 c) Define a class and give **TWO (2)** types of component of a class.  
C1 Definisikan kelas dan berikan **DUA (2)** jenis komponen kelas.

[5 marks]

- CLO2 C2 d) Mouse is a real world object and it has its own characteristics like brand, color, and type of the mouse. This mouse can be moved to select the task in computer. Draw an UML Class Diagram to show the attributes and behaviour of a mouse. The class and all its members must be in public access specifier.

*Tetikus adalah objek dunia sebenar dan mempunyai ciri khas seperti jenama, warna, dan jenisnya. Tetikus ini boleh bergerak untuk memilih tugas di komputer. Lukiskan Rajah Kelas UML untuk menunjukkan sifat dan tingkah laku tetikus. Kelas dan semua ahli itu mestilah dalam penunjuk akses awam.*

[5 Marks]

[5 Markah]

- CLO3 C3 e) Based on your answer in 1(d), write a class definition for class Mouse by using Java programming language.

*Berdasarkan jawapan anda dalam 1(d), tuliskan definisi class bagi Tetikus menggunakan bahasa pengaturcaraan Java.*

[5 Marks]

[5 Markah]

**QUESTION 2****SOALAN 2**

- CLO1 a) Identify THREE (3) types of inheritance and draw a diagram for each type.

*Tentukan TIGA (3) jenis perwarisan dan lukiskan diagram bagi setiap jenis.*

[7 marks]  
[7 markah]

- CLO2 b) Write a segment code :

*Tulis kod segmen :*

- i. To define a base class named Shape with attribute height and width.

*Untuk mendefinisikan kelas asas bernama Shape bersama atribut height dan width.*

- ii. To define a subclass named Rectangle from class Shape with attribute width.

*Untuk mendefinisikan subkelas bernama Rectangle daripada kelas shape bersama atribut area.*

[8 marks]  
[8 markah]

- CLO2 c) Write a program to create a package named **human**. The package should contain a class named **Student** with declaration of variable name and the name can be displayed.

*Tulis satu program untuk mencipta pakej bernama Human. Pakej tersebut perlu mengandungi satu kelas bernama Student dengan mengisyihar pembolehubah name dan boleh memaparkan nama tersebut.*

[6 marks]  
[6 markah]

- CLO3 d) Predict the output based on the following program

C4 *Terjemahkan output berdasarkan program berikut*

```

class Transport {
 String type;
}

class Car extend Transport {
 String brand_name;
 String model_name;
 int no_of_tyre;

 public Car(String bname, String mname, int notyres) {
 super.type = "Car";
 brand_name = bname;
 model_name = mname;
 no_of_tyre = notyres;
 }

 void displayData() {
 System.out.println("Brand Name: " + brand_name);
 System.out.println("Model Name: " + model_name);
 System.out.println("Number of Tyres: " + no_of_tyre);
 }
}

public static void main(String args[]) {
 Car c1 = new Car("Honda", "City", 4);
 System.out.println("Class " + type);
 c1.displayData();
}

```

[5 marks]  
[5 markah]

- CLO1 e) Define a thread in Java program.

C1 *Definisikan thread dalam program Java.*

[1 marks]  
[1 markah]

- CLO2 f) Identify the method and write the syntax to wake up all suspended thread.

C2 *Kenalpasti metod dan tuliskan sintaks untuk bangunkan semua thread yang sedang tergantung.*

[1 marks]  
[1 markah]

CLO3 g) Identify type of exception based on the following segment code.

C2 *Kenalpasti jenis pengecuali untuk kod segmen berikut.*

i.        int array[] = {20,30,40};  
          for (int i = 0; i>=3; i++ ){  
                    System.out.println("The value of i is " + array[i] );  
                }

ii.        int i = 1;  
          int j = 1;  
  
          ++i;  
          --j;  
  
          if (i/j = 1) {  
                    System.out.println("You are success" );  
                }

[2 marks]  
[2 markah]

### SOALAN TAMAT