

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR

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DFT4024 : OBJECT ORIENTED PROGRAMMING

TARIKH : 31 OKTOBER 2017
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **DUA PULUH ENAM (26)** 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



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. Identify the concept of OOP which allows hiding of both the data fields and the methods that act on the data.
Tentukan konsep OOP yang membenarkan penyembunyian data dan metod yang berfungsi ke atas data.
 - A. Inheritance
Perwarisan
 - B. Polymorphism
Polymorphism
 - C. Encapsulation
Pengkapsulan
 - D. Data Abstraction
Data Abstraction

2. Select the **CORRECT** statement about an object.
*Pilih pernyataan yang **TEPAT** yang menerangkan tentang Objek.*
 - A. An object is a blueprint for a class.
Objek adalah pelan untuk kelas.
 - B. An object and a class are exactly the same.
Objek dan kelas adalah benda yang sama.
 - C. An object is instance of a class.
Objek adalah instance kepada kelas.
 - D. An attribute cannot be a reference to another object.
Atribut tidak dapat dirujuk kepada objek lain.

- 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 input bagi Java Virtual Machine (JVM).

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

- CLO1
C2 4. Identify the error type found in **Figure A1**.
Kenalpasti jenis ralat yang dijumpai di dalam Rajah A1.

```
for (int a=0; a<0; a--)
```

Figure A1 / Rajah A1

- A. Syntax error
Ralat sintaks
- B. Logical error
Ralat logik
- C. Runtime error
Ralat masa larian
- D. Compile-time error
Ralat masa kompile

- CLO1
C1 5. Refer to the code segment in **Figure A2**, identify the name of the Java file which contain this program.
Merujuk kepada kod segmen di dalam Rajah A2, kenalpasti nama fail Java yang mengandungi program ini.

```
import myLibrary.*;
public class ShowSomeClass
{
    // code for the class...
}
```

Figure A2 / Rajah A2

- A. myLibrary.java
- B. ShowSomeClass
- C. ShowSomeClass.java
- D. ShowSomeClass.class

- CLO1
C1 6. Select the **CORRECT** modifier in the Java programming language.
*Pilih pengubahsuai yang **BETUL** dalam bahasa pengaturcaraan Java.*
- A. public
B. class
C. double
D. for
- CLO1
C2 7. Based on the **class Politeknik** in **Figure A3** , choose the prototype of the default constructor.
*Berdasarkan **class Politeknik** di dalam **Rajah A3**, pilih prototaip bagi pembina lalai.*
- ```
public class Politeknik {
}
```
- Figure A3 / Rajah A3**
- A. Politeknik()  
B. Politeknik(void)  
C. public Politeknik()  
D. public Politeknik(void)
- CLO2  
C2      8. Identify the best answer to declare an array and initialize it with seven numbers.  
*Tentukan jawapan yang paling tepat untuk mengisytihar tatasusunan dan memberikan nilai dengan tujuh nombor.*
- A. Array a = new Array(7);  
B. int [ ] a = {21, 22, 16, 24, 18, 06, 12};  
C. int a [ ] = new int(7);  
D. int [7] array;

CLO2  
C2

9. Identify the output based on the segment code in **Figure A4**.

*Kenalpasti output bagi keratan kod di dalam Rajah A4.*

```
int count = 0;
while(count<=6)
{
 System.out.print(count + " ");
 count = count+2;
}
System.out.println();
```

**Figure A4 / Rajah A4**

- A. 0 2 4
- B. 0 2 4 6
- C. 0 2 4 6 8
- D. 1 2 3 4 5 6

CLO2  
C2

10. Refer to the segment code in **Figure A5**, find the value of X that will print all members of array values.

*Merujuk kepada keratan kod di dalam Rajah A5, cari nilai bagi X yang akan mencetak semua ahli bagi tatasusunan values.*

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

**Figure A5 / Rajah A5**

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

CLO2  
C3

11. Convert the segment code in **Figure A6** to switch case statement.

Tukarkan keratan kod di dalam **Rajah A6** kepada pernyataan switch case.

```
if(choice == 1)
{
 System.out.println("You selected 1.");
}
else if(choice == 3)
{
 System.out.println("You selected 3.");
}
else
{
 System.out.println("Select again please.");
}
```

**Figure A6 / Rajah A6**

- A. `switch(choice)`
- ```
{
    case 1: System.out.println("You selected 1.");
    break;
    case 3: System.out.println("You selected 3.");
    break;
    default: System.out.println("Select again please.");
    break;
}
```
- B. `Switch(choice)`
- ```
{
 Case 1: System.out.println("You selected 1.");
 Case 2: System.out.println("You selected 3.");
 Case 3: System.out.println("Select again please.");
}
```
- C. `switch(choice)`
- ```
{
    case 1: System.out.println("You selected 1.");
    case 2: System.out.println("You selected 3.");
    default: System.out.println("Select again please.");
}
```
- D. `switch(choice)`
- ```
{
 case 1: System.out.println("You selected 1.");
 break;
 case 3: System.out.println("You selected 3.");
 break;
 case 4: System.out.println("Select again please.");
 break;
}
```

CLO3  
C3

12. Analyse the program in **Figure A7**. Choose the **CORRECT** way to create an object from class Circle.

*Analisa aturcara dalam Rajah A7. Pilih cara yang **BETUL** untuk mencipta objek dari kelas 'Circle'.*

```
class Circle {
 public int x, y;
 public double r;

 Circle (int centreX, int CentreY, double radius) { //Constructor/konstruktur
 x = centreX;
 y = centreY;
 r = radius;
 }
}
```

**Figure A7 / Rajah A7**

- A. Circle aCircle = new Circle (5, 10, 5.0);  
B. Circle aCircle = new Circle (5.0, 10.0, 5.0);  
C. Circle aCircle = new Circle (5, 10);  
D. Circle aCircle = new Circle (5, 5.0);

CLO1  
C1

13. Determine the keyword used to inherit a class.

*Tentukan kata kunci yang digunakan untuk mewarisi satu kelas.*

- A. super  
B. this  
C. extent  
D. extends

- CLO1      14. Select the keyword that refers to the statement in **Figure A8**.  
C1            *Pilih kata kunci yang merujuk kepada pernyataan di dalam Rajah A8.*
- Used to differentiate the members of superclass from the members of subclass, if they have same names.  
*Digunakan untuk membezakan ahli-ahli 'superclass' daripada ahli-ahli 'subclass', sekiranya mempunyai nama yang sama.*
  - Used to invoke the superclass constructor from subclass.  
*Digunakan untuk memanggil 'superclass constructor' dari satu 'subclass'*
- Figure A8 / Rajah A8**
- A. super  
B. final  
C. static  
D. extends
- CLO1      15. Identify the correct way of inheriting class A by class B.  
C2            *Tentukan cara yang tepat untuk pewarisan class A oleh class B.*
- A. class A inherits class B { }  
B. class A extends B { }  
C. class B inherits class A { }  
D. class B extends A { }

CLO1  
C2

16. Choose the most suitable program codes to express the description on type of relationship between classes in **Figure A9**.

*Pilih kod program yang paling sesuai untuk mewakiliuraian tentang jenis hubungkaitan antara kelas di dalam Rajah A9.*

"Cat is the subclass of both Mammal and Animal classes."

"'Cat' adalah 'subclass' bagi kedua-dua kelas 'Mammal' dan 'Animal'."

**Figure A9 / Rajah A9**

- A. public class Cat extends Mammal, Animal { }
- B. public class Cat inherits Mammal, Animal { }
- C. public class Animal { }  
public class Mammal extends Animal { }  
public class Cat extends Mammal { }
- D. public class Animal { }  
public class Mammal inherits Animal { }  
public class Cat inherits Mammal { }

CLO1  
C2

17. The code in **Figure A10** will produce an error in Java Programming language.  
*Kod di dalam Rajah A10 akan menghasilkan suatu ralat dalam bahasa pengaturcaraan Java.*

```
public class Animal1 { }

public class Animal2 { }

public class Mammal extends Animal1, Animal2 { }
```

**Figure A10 / Rajah A10**

Determine the cause of the error.

*Tentukan punca kepada ralat di atas.*

- A. class Mammal is declared using public access specifier.  
*Kelas Mammal diisyiharkan dengan access specifier 'public'.*
- B. class Mammal extends from more than one classes.  
*Kelas Mammal diwarisi menerusi lebih daripada satu kelas.*
- C. class Mammal uses the keyword extends to apply the inheritance concept.  
*Kelas Mammal menggunakan kata kunci 'extends' untuk mengaplikasikan konsep pewarisan.*
- D. class Mammal uses multilevel inheritance that is not supported by Java.  
*Kelas Mammal menggunakan 'multilevel inheritance' yang tidak dibenarkan oleh Java.*

CLO2  
C1

18. Consider the program in **Figure A11**. Classify the implementation type of polymorphism in the Java.

*Pertimbangkan aturcara di dalam **Rajah A11**. Klasifikasi jenis pelaksanaan polimorfisme dalam Java.*

```
class Display {
 public void display (int value) {
 System.out.println("Integer value:"+value);
 }
 public void display (String str) {
 System.out.println("String value:"+str);
 }
 public void display (float value) {
 System.out.println("Float value:"+value);
 }
}
```

**Figure A11 / Rajah A11**

- A. Method Overloading
- B. Method Overriding
- C. Operator Overloading
- D. Operator Overriding

CLO2  
C1

19. Choose the **CORRECT** rule related to implementing an interface.

*Pilih pernyataan yang **BETUL** berkaitan dengan pelaksanaan suatu antara muka.*

- A. A class can implement only one interface at a time.  
*Satu kelas hanya boleh melaksanakan satu antara muka pada satu masa.*
- B. A class can extend only one class, but implements many interfaces.  
*Satu kelas boleh 'extend' daripada hanya satu kelas, tetapi melaksanakan banyak antara muka.*
- C. An interface can be implemented by using the keyword interface.  
*Suatu antara muka boleh dilaksanakan dengan menggunakan kata kunci 'interface'.*
- D. An interface cannot extend another interface, similarly to the way that a class cannot extend many classes.  
*Suatu antara muka tidak boleh 'extend' dari antara muka yang lain, sama seperti satu kelas tidak boleh 'extend' dari banyak kelas yang lain.*

CLO2  
C2

20. Select the **CORRECT** source code to define an abstract class.

- Pilih kod sumber yang **BETUL** untuk mendefinisikan abstract class.
- `abstract class BankAccount {  
 abstract void withdraw();  
}`
  - `class BankAccount {  
 abstract void withdraw ();  
}`
  - `abstract BankAccount {  
 abstract void withdraw ();  
}`
  - `class abstract BankAccount {  
 abstract void withdraw ();  
}`

CLO2  
C2

21. Refer to **Figure A12**. Determine the **MOST IMPORTANT** information that you can gain from the error message provided.

Rujuk **Rajah A12**. Tentukan maklumat yang **PALING PENTING** yang boleh diperolehi daripada ‘error message’ yang diberikan.

```
Employee.java:46: Employee is abstract; cannot be instantiated
 Employee e = new Employee("George W.", "Houston, TX", 43);
 ^
1 error
```

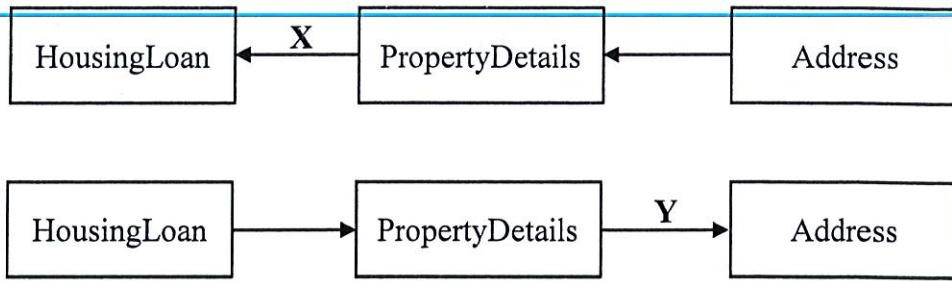
Figure A12 / Rajah A12

- Any class with errors cannot be instantiated.  
*Mana-mana kelas yang mempunyai ralat tidak boleh di ‘instantiated’.*
- Any instance of a class can be instantiated using the `new` keyword.  
*Mana-mana ‘instance’ bagi suatu kelas boleh di ‘instantiated’ dengan menggunakan kata kunci `new`.*
- Any class declared as abstract cannot be instantiated.  
*Mana-mana kelas yang diisyiharkan sebagai ‘abstract’ tidak boleh di ‘instantiated’.*
- Any instance of a class is considered as abstract.  
*Mana-mana ‘instance’ bagi suatu kelas dianggap sebagai ‘abstract’.*

CLO2

22.

C2

**Figure A13 / Rajah A13**

**Figure A13** 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 A13 menunjukkan satu senario yang menunjukkan tentang jenis hubungkait antara kelas-kelas yang berbeza di dalam satu kajian kes berkaitan dengan perbankan. Pilih jenis hubungkait yang diwakili dengan X dan Y.*

- | 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  
C3

23. Determine the output from the Java program provided in **Figure A14**.

*Tentukan output dari program Java yang diberikan dalam Rajah A14.*

```
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();
 }
}
```

**Figure A14 / Rajah A14**

- A. 0
- B. 1
- C. 2
- D. Compilation error

CLO2  
C3

24. Choose the **CORRECT** output after compilation from **Figure A15**.

*Pilih output yang **BETUL** selepas kompil kod pada Rajah A15.*

```
public class Main {
 public static void main(String args[]) {
 square obj=new square();
 obj.sqr(9);
 obj.sqr(5.5);
 }
 class square{
 void sqr(int no) {
 System.out.println("The square of " + no + " is " + (no *
 no));}

 void sqr(int no) {
 System.out.println("The square of " + no + " is " + (no *
 no));}
 }
}
```

**Figure A15 / Rajah A15**

- A. Compilation error  
*Ralat kompil*
- B. The square of 9 is 81
- C. The square of 9 is 81  
The square of 5.5 is 30.25
- D. The square of 5.5 is 30.25  
The square of 9 is 81

CLO2  
C3

25. Choose the **CORRECT** output and method implemented when the following program in **Figure A16** runs.

*Pilih output dan metod pelaksanaan yang **BETUL** apabila program di dalam Rajah A16 dijalankan.*

```
class Overload {
 int x;
 int y;
 void add (int a) {
 x = a+1;
 }
 void add (int a, int b) {
 x = a + 2;
 }
}
class OverloadMethod {
 public static void main (String args[]) {
 Overload obj = new Overload();
 int a = 0;
 obj.add(6);
 System.out.println(obj.x);
 }
}
```

**Figure A16 / Rajah A16**

|    | <b>Output</b> | <b>Method Implemented</b> |
|----|---------------|---------------------------|
| A. | 5             | void add(int a, int b)    |
| B. | 6             | void add(int a)           |
| C. | 7             | void add(int a)           |
| D. | 8             | void add(int a, int b)    |

CLO2  
C3

26. Choose the correct output based on the code in
- Figure A17**
- .

*Pilih output yang betul berdasarkan kod dalam Rajah A17.*

```
class Exam{
 public void display(){
 System.out.println("From class Exam:: Method
display() is called");
 }
}

class FinalExam extends Exam{
 public void display(){
 System.out.println("From class FinalExam::
Method display() is called");
 }
}

class TestExam{
 public static void main (String args[]){
 Exam e=new FinalExam();
 e.display();
 }
}
```

**Figure A17 / Rajah A17**

- A. From class Exam:: Method display() is called
- B. From class FinalExam:: Method display() is called
- C. From class Exam:: Method display() is called  
From class FinalExam:: Method display() is called
- D. Compilation Error

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.

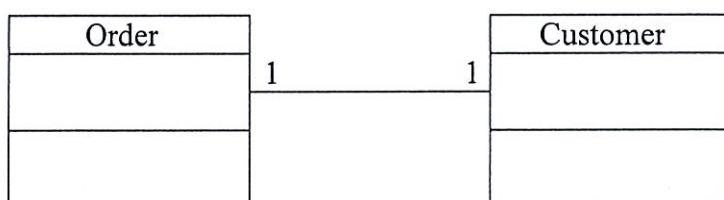
*Hubungan antara satu pesanan dengan seorang pelanggan adalah mandatori – setiap pesanan mesti dikaitkan dengan seorang pelanggan. Hubungan antara pelanggan dan pesanan adalah tidak diwajibkan – seorang pelanggan tidak perlu membuat sebarang pesanan.*

**Figure A18 / Rajah A18**

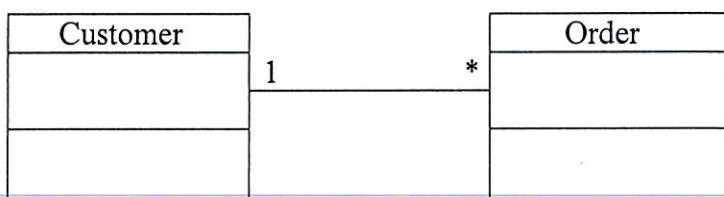
The scenario in **Figure A18** above describes the relationship between a customer and the orders he/she has placed with company XYZ. Illustrate the scenario given by representing multiplicity of relationship in Class Diagrams.

*Senario di dalam Rajah A18 di atas menerangkan tentang hubungan antara ‘Customer’ dan ‘Order’ yang dibuat ke atas syarikat XYZ. Berikan gambaran senario yang diberikan dalam bentuk ‘Class Diagram’.*

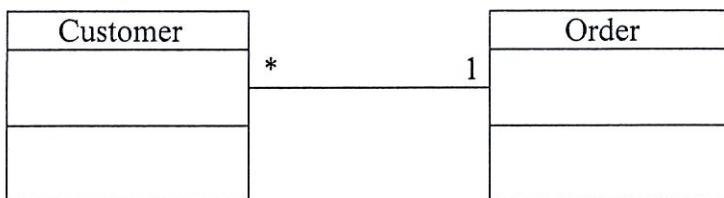
A.



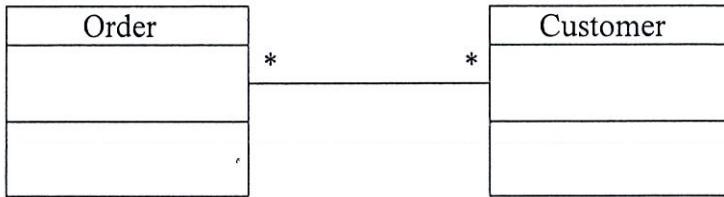
B.



C.



D.



- CLO1 C2 28. Identify the keyword used to monitor the statement for exception.  
*Kenalpasti katakunci yang digunakan untuk memantau pernyataan bagi pengecualian.*

- A. try
- B. catch
- C. throw
- D. throws

- CLO2 C3 29. Given the following code in **Figure A19**, choose the **CORRECT** catch block to use.  
*Diberi kod seperti pada Rajah A19. Pilih blok 'catch' yang **BETUL** untuk digunakan.*

```
try { int x = Integer.parseInt("One"); }
```

**Figure A19 / Rajah A19**

- A. ArithmeticException
- B. NullPointerException
- C. NumberFormatException
- D. ArrayIndexOutOfBoundsException

- CLO3 C4 30. Analyze the code in **Figure A20**, determine the output.  
*Analisa kod dalam Rajah A20, tentukan outputnya.*

```
class ExceptionHandling {
 public static void main (String args[]) {
 try {
 int a, b;
 b= 0;
 a = 5/b;
 System.out.print("No exception");
 }
 catch(ArithmenticException ae) {
 System.out.print("Exception detected");
 }
 }
}
```

**Figure A20 / Rajah A20**

- A. No exception
- B. Exception detected
- C. Exception handling
- D. ArithmenticException

**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.

CLO1

C1

**QUESTION 1**

- a) (i) Define the following object oriented concepts and terminologies.

*Takrifkan istilah dan konsep berorientasikan objek berikut.*

- a. Inheritance
- b. Data Abstraction
- c. Polymorphism

[3 marks]

[3 markah]

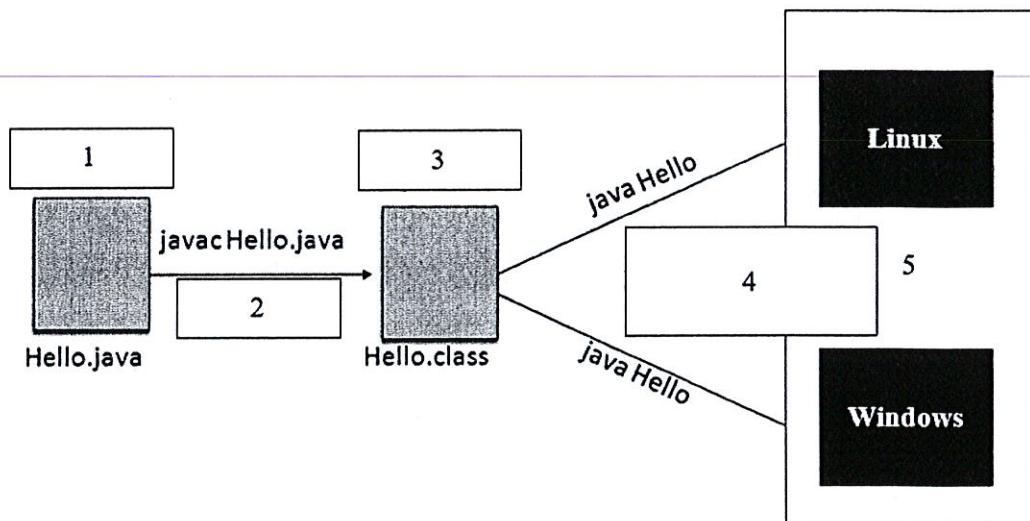
- (ii) Draw and label the UML class diagram. [2 marks]

*Lukis dan labelkan kelas diagram UML.* [2 markah]

CLO1  
C1

- b) According to the diagram in **Figure B1** below, fill in the boxes marked as 1 to 5 with the correct java architecture components.

*Berdasarkan Rajah B1 di bawah, isikan kotak-kotak berlabel 1 hingga 5 dengan komponen arkitektur java yang betul.*



**Figure B1 / Rajah B1**

[5 marks]

[5 markah]

- CLO1 C1 c) (i) Identify the use of variable in a class. [1 marks]  
*Kenal pasti penggunaan pembolehubah di dalam suatu kelas.* [1 markah]
- (ii) List **FOUR (4)** categories of primitive data types in Java program. [4 marks]  
*Senaraikan **EMPAT (4)** kategori jenis data primitif dalam program Java.* [4 markah]
- CLO2 C2 d) Based on your knowledge on UML Class Diagram, transform the diagram given in **Figure B2** into a Java Source Code.  
*Berdasarkan pengetahuan anda berkaitan ‘UML Class Diagram’, ubah diagram yang diberi dalam **Rajah B2** ke ‘Java Source Code’.*
- |                           |
|---------------------------|
| <b>Circle</b>             |
| - radius : double = 1.0   |
| - colour : String = “red” |
| + getRadius () : double   |
| + getArea () : double     |
- [5 marks]
- Figure B2 / Rajah B2** [5 markah]
- CLO3 C3 e) Consider the following string:  
*Pertimbangkan String berikut:*
- `String hannah = "Did Hannah see bees? Hannah did.;"`
- i. Interpret the value displayed by the expression:  
*Tafsirkan nilai yang dipapar oleh ungkapan:*  
`hannah.length()`
- ii. Interpret the value returned by the method call:  
*Tafsirkan nilai yang dipapar oleh metod yang dipanggil:*  
`hannah.substring(5,10)`

- iii. Interpret the value returned by the method call:

*Tafsirkan nilai yang dipaparkan oleh metod yang dipanggil:  
hannah.indexOf('s')*

- iv. Rewrite an expression that will change the letter **H** in the string hannah to the letter **h**.

*Tulis semula ungkapan yang akan menukar huruf **H** dalam string hannah kepada huruf **h**.*

- v. Rewrite an expression that refers to the letter **b** in the string hannah using method `charAt()`.

*Tulis semula ungkapan yang akan merujuk huruf **b** dalam string hannah menggunakan metod `charAt()`.*

[5 marks]

[5 markah]

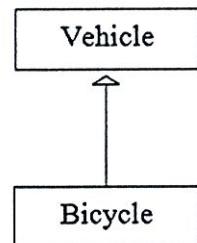
## QUESTION 2

### SOALAN 2

CLO1  
C2

- a) Based on the given illustration in **Figure B3**, identify which is superclass and subclass.

*Berdasarkan ilustrasi yang diberikan dalam Rajah B3, kenalpasti yang mana merupakan superclass dan subkelas.*



[2 marks]

**Figure B3 / Rajah B3**

[2 markah]

- CLO1  
C2 b) State the **FIVE (5)** differences between an **interface** and a **class**. [5 marks]  
*Nyatakan **LIMA(5)** perbezaan di antara 'interface' dengan 'class'.* [5 markah]

- CLO1  
C1 c) Describe an Exception. [1 marks]  
*Terangkan tentang Exception.* [1 markah]

- d) Answer the question based on the program in **Figure B4**.  
*Jawab soalan berdasarkan program dalam **Rajah B4**.*

```
public class Mother{
 public String name;
 public int age;
 Mother(){
 name="Aminah";
 age=45;
 }

 public void display(){
 System.out.println("Name: "+name);
 System.out.println("Age: "+age);
 }
}
```

*Figure B4 / Rajah B4*

- CLO2  
C2 i. Create a class named Child that inherits the Mother class and declare an instance name location (String) for class Child.

*Cipta kelas bernama Child yang mewarisi kelas Mother dan isytiharkan instance bernama location (String) untuk kelas Child.*

[2 marks]

[2 markah]

- CLO2  
C2 ii. Define a constructor in class Child and give an appropriate initial values for the instances (name, age and location).

*Takrifkan pembina dalam kelas Child dengan nilai instances (name, age and location) yang bersesuaian.*

[3 marks]

[3 markah]

|            |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
|------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| CLO2<br>C2 | iii. | Define a method display() in class Child, execute the display() method in superclass using the keyword super. Method display() in class child should print the information of name, age and location.<br><br><i>Takrifkan metod display() dalam kelas Child dan laksanakan metod display() dalam superclass menggunakan kata kunci super. Metod display() dalam kelas child sepatutnya mengeluarkan maklumat berkaitan dengan name, age dan location.</i> | [3 marks]  |
|            |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                           | [3 markah] |

|            |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |
|------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| CLO3<br>C4 | iv. | Create other class named Main for the main method and create object for the 2 classes (Mother and Child). Then execute the display() method for Mother and Child. Example of the output in <b>Figure B5</b> .<br><br><i>Cipta satu kelas lagi bernama Main untuk penggunaan main method dan cipta object untuk dua kelas (Mother and Child). Laksanakan metod display() untuk Mother dan juga Child. Contoh output adalah seperti dalam Rajah B5.</i> | [3 marks]  |
|            |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                       | [3 markah] |

Mother's info:  
Name: Aminah  
Age: 45  
Child's info:  
Name: Sarah  
Age: 20  
Location: Dungun

*Figure B5 / Rajah B5*

[5 marks]

[5 markah]

- e) Write a Java program based on statement below:

*Tulis program Java berdasarkan pernyataan di bawah:*

CLO2  
C3

- i) Create Animal class and Cat class. Cat class is a sub class, meanwhile Animal class is a super class.

*Cipta kelas Animal dan kelas Cat. Kelas Cat adalah kelas sub, manakala kelas Animal adalah kelas super.*

[2 marks]

[2 markah]

CLO2  
C3

- ii) Create a default constructor in the Cat class to invoke the default constructor of the super class.

*Cipta pembina lalai dalam kelas Cat untuk memanggil pembina lalai kelas super.*

[2 marks]

[2 markah]

CLO2  
C3

- iii) Create the main method in Cat class. In order to implement the polymorphism, declare a reference variable of Animal object that refer to Cat object inside the main method of Cat class.

*Cipta metod utama di dalam kelas Cat. Bagi melaksanakan polimorfisme, isytiharkan pembolehubah rujukan bagi objek Animal yang merujuk kepada objek Cat di dalam metod utama kelas Cat.*

[2 marks]

[2 markah]

CLO2  
C2

- f) Describe **ONE (1)** of the ways to create thread.

*Huraikan SATU (1) kaedah untuk mencipta 'thread'.*

[1 marks]

[1 markah]

CLO3  
C2g) Write the output for the program code in **Figure B6**.*Tuliskan output yang terhasil untuk kod program di dalam **Rajah B6**.*

```
class FirstThread extends Thread {
 public void run() {
 int a = 8,b = 4;
 System.out.println("Amount is "+(a+b));
 }
}

class SecondThread extends Thread {
 public void run() {
 int c = 13,d = 5;
 System.out.println("Average is "+((c+d)/2));
 }
}

public class TestThread {
 public static void main(String args[]) {
 FirstThread obj1 = new FirstThread();
 obj1.start();
 SecondThread obj2 = new SecondThread();
 obj2.start();
 }
}
```

**Figure B6 / Rajah B6**[2 marks]  
[2 markah]**SOALAN TAMAT**

