



# UNIVERSITI TUN HUSSEIN ONN MALAYSIA

## PEPERIKSAAN AKHIR SEMESTER II SESI 2009/2010

NAMA MATA PELAJARAN	:	PRINSIP PENGATURCARAAN BERORIENTASIKAN OBJEK
KOD MATA PELAJARAN	:	DIT 2054
KURSUS	:	2 DIT
TARIKH PEPERIKSAAN	:	APRIL/MEI 2010
JANGKA MASA	:	2 JAM 30 MINIT
ARAHAN	:	JAWAB <b>SEMUA</b> SOALAN.

KERTAS SOALAN INI MENGANDUNGI ENAM (6) MUKA SURAT

**SECTION A**

Instruction: Identify whether the following identifiers are **VALID** or **INVALID**.

**Q1** Oracle

**Q2** identifier

**Q3** variable

**Q4** kereta( )

**Q5** true

**Q6** x\*y

**Q7** default

**Q8** 7thJuly

**Q9** "history"

**Q10** 2009/2010

(10 marks)

**SECTION B**

Instruction: Answer **ALL** questions.

**Q11** Define the following Object Oriented terminology:

- (a) Polymorphism
- (b) Encapsulation
- (c) Constructor
- (d) Inheritance
- (e) Method Overloading

(10 marks)

**Q12** Rewrite the following program segment using if/else statements.

```
switch(colour)
{
    case 1:
    case 2: cout<<"Red";
            break;
    case 3: cout<<"Green";
            break;
    case 4: cout<<"Yellow";
            break;
    case 5:
    case 6: cout<<"Blue";
            break;
    default: cout<<"Unknown";
}
```

(5 marks)

**Q13** Given the following class, called CupHolder, write code segment that creates an instance of the class, initializes its two member variables, and then displays the value of each member variable.

```
public class CupHolder {
    public int x;
    public double y;
}
```

(6 marks)

**Q14** List **SIX (6)** advantages of object oriented programming. (6 marks)

**Q15** Gives explanation and examples of object characteristics. (4 marks)

**Q16** Write a program by using object oriented programming to display your full name on the screen. (5 marks)

**Q17** Based on the given C++ class definition,

```

class X{
    private: int a;
    protected: int b;
    public: int c;
    ....
}
class Y : private X {
    private: int d;
    protected: int e;
    ....
}
class Z : public X {
    private: int f;
    ....
}

```

**FIGURE Q17**

- (a) Create **ONE (1)** object for each class defined in **FIGURE Q17**. (3 marks)
- (b) Based on object from X class created in **Q17(a)**, write **ONE (1)** statement to show how the object could access members from its class. (2 marks)
- (c) What are the data members from X class which could be accessed by object from Y class? (2 marks)
- (d) Determine the data members which could be accessed by object from class Z? (2 marks)

**SECTION C**

Instruction: Answer **ALL** questions.

- Q18** Write a program by using object oriented programming that asks for your height in meters and your weight in kilograms. Calculate your Body Mass Index (BMI) by dividing your mass in kilograms by the square of your height in meters.

A sample output for your program is as follows:

```
Please enter your height in Meters: 1.82
Please enter your weight in Kilograms: 70

Your BMI is: 21.13
```

(10 marks)

- Q19** Write a program by using object oriented programming called Temperature containing a temperature in Fahrenheit and a method called calculateCelsius. Your program will convert a Fahrenheit value which is being entered by the user, to a Celsius value and prints out the Celsius value.

The formula to convert from Fahrenheit to Celsius is:

$$\text{Celsius} = (\text{Fahrenheit} - 32) * 5 / 9$$

A sample output for your program is as follows:

```
Please enter a value in Fahrenheit: 72
The temperature for 72 Fahrenheit in Celsius is: 22.22
```

(10 marks)

- Q20** Write a complete program by using object oriented programming to display output as **FIGURE Q20**:

<b>Lecturer Name:</b>	XXX
Basic Pay:	RMXXX
Allowance:	RMXXX
Gross Pay:	RMXXX
Schedular Tax Deduction (STD):	RMXXX
Net Pay:	RMXXX

**FIGURE Q20**

The Basic pay for the Lecturer is RM2500.00. Allowance is 20% from a basic pay. Gross pay is by adding basic pay and allowance. 5% from basic pay is deducted for Scheduler Tax Deduction (STD) payment. Net pay is when gross pay is deducted with STD.

(10 marks)

- Q21** **FIGURE Q21** shows the attributes and methods for class `Student`.

Student
• mark
• GetStudentID
• SetStudentID
• GetMark
• SetMark
• FindGrade

**FIGURE Q21**

- (a) Write a program to implement the class `Student`. Table 1 is used for the Grade:

Table 1: For FindGrade Method

Mark	Grade
Mark $\geq$ 80	A
80 > Mark $\geq$ 70	B
70 > Mark $\geq$ 60	C
60 > Mark $\geq$ 50	D
50 > Mark	E

(10 marks)

- (b) Create main function that instantiates the class `Student` and call the methods in class `Student`.

(5 marks)