



**UNIVERSITI TEKNOLOGI MARA
PRACTICAL TEST**

COURSE	:	FUNDAMENTALS OF DATA STRUCTURES
COURSE CODE	:	CSC248
SEMESTER	:	OCTOBER 2023 - FEBRUARY 2024
TIME	:	1 1/2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Answer **ALL** questions
2. Please answer the question using any Java Programming Language and you need to write a complete program as stated in the question.
3. Please submit the question using UFuture and you need to submit **ONLY ONE** file. Please combine the `Computer` class and Java Application Program (`main()` method).

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This examination paper consists of 3 printed pages

Given the following Computer and ArrayList ADTs.

//Please write a complete Computer class by provided the following
//method ONLY

```
class Computer
{
    private String brand; //computer brand
    private int serialNo; //computer identification number (unique)
    private int year;      //year of buying
    private double price; // buying price

    public Computer(String b, int s, int y, double p)
    {
        brand = b;
        serialNo = s;
        year = y
        price = p;
    }

    public String getBrand()
    {    return brand;    }

    public int getSerialNumber()
    {    return SerialNo;    }

    public int getYear()
    {    return year;    }

    public double getPrice()
    {    return price;    }
}
```

// Please to be noted that the following built-in method **ONLY** can be
// used in your program. This is built-in class, and you need to
// import the class from the ArrayList class.

```
public class ArrayList
{
    public ArrayList (int size){...}

    public void add (int index, Object elem){...}

    public Object remove (int index){...}

    public Object get (int index){...}

    public Object set (int index, Object elem){...}

    public int size(){...}
}
```

Write a complete Java program using the above ADTs.

- i) Declare two Array list, `listComputer1` and `listComputer2`. (2 marks)
- ii) Insert some computer data into `listComputer1`. The number of data to be inserted is asked from the user. (4 marks)
- iii) Display the computer's information from `listComputer1`, in the following format:

COMPUTER INFORMATION

Brand	Serial Number	Year	Price (RM)
-----	-----	----	-----
-----	-----	----	-----
-----	-----	----	-----
-----	-----	----	-----

Total Price of all computers: RM_____

(5 marks)

- iv) From the first list, `listComputer1` copy all computer information for the year greater than 2015 to second list, `listComputer2`. Then remove them from `listComputer1`. After that, display the computer's information from `listComputer1` and `listComputer2`. (5 marks)

- v) Search for the computer that has serial number 10001010 from `listComputer1` and replace it with the following information:

Brand	: Acer
Serial Number	: 10001011
Year	: 2004
Price	: 5000.00

After that, display the computer's information from `listComputer1`.

(4 marks)

END OF QUESTION PAPER