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FINAL EXAMINATION**

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**COURSE NAME : ENGINEERING SOFTWARE**  
**COURSE CODE : DKE 2123**  
**EXAMINATION : DECEMBER 2022**  
**DURATION : 3 HOURS**

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**INSTRUCTION TO CANDIDATES**

1. This question paper consists of **TWO (2)** parts :  
PART A (60 Marks)  
PART B (40 Marks)
  
2. Candidates are not allowed to bring any material to examination room except with the permission from the invigilator.
  
3. Please check to make sure that this examination pack consist of:
  - i. The Question Paper
  - ii. An Objective Answer Paper
  - iii. An Answering Booklet

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

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*This examination paper consists of 7 printed pages including front page*

**PART A**

This part contains of **SIX (6)** questions. Questions **Q1** to **Q4** will be based on C++ programming and Question **Q5** to **Q6** will be based on Matlab programming.

Answer ALL questions in Answer Sheet.

**QUESTION 1**

a. List the types of level computer language.

(3 marks)

b. State the type of component hardware computer.

(4 marks)

c. State the type of data for a character.

(3 marks)

**QUESTION 2**

a. Draw the block diagram of computing environment.

(3 marks)

b. Describe briefly the classic life cycle model.

(4 marks)

c. Identify where the applications are and system software allocate in computing environment.

(3 marks)

## QUESTION 3

- a. The function coding below has errors to execute. Rewrite the function coding to solve the errors.

(6 marks)

```
#include <iostream>
using namespace std;
int main ()
{
    int TICKETcard;
    cout<<"*****welcome to AUTOPAY PARKING system*****"<<endl;
    cout<<"insert your TICKET :"<<endl;
    cin<<TICKET;
    if (TICKET<=5)
    {
        Cout>>"your PAY is RM 2.00....."<<endl;
    }
    else
    {
        cout<<"your PAY is RM 5.00....."<<endl;; }
    return ;
}
```

- b. Demonstrate the output function coding in **Question 2 (a)**.

(4 marks)

## QUESTION 4

Predict in the blank the correct syntax in a program shown below:

a. Program Q4(a)

(5 marks)

```
#include <iostream.h>
  _____ (a) _____ : Nest
  {
    _____ (b) _____ :
    _____ (c) _____ Display
    {
      _____ (d) _____ :

      int s;
      _____ (e) _____ :
      void sum( int a, int b)
      {
        s =a+b;
      }
      void show( )
      {
        cout << "\nSum of a and b is:: " << s;
      }
    };
  };
```

b. Program Q4(b)

(5 marks)

```
#include <iostream.h>
#include <conio.h>
  _____ (a) _____ Value
  {
    _____ (b) _____ :
    int val;
    _____ (c) _____ :

    void set_values (int a)
    { val=a;}
  };
  _____ (d) _____ Square: public Value
  {
    _____ (e) _____ :
int square()
  { return (val*val); }
  };
```

```
int main ()
{
Square sq;
sq.set_values (5);
cout << "The square of 5 is:." << sq.square() << endl;
getch();
return 0;
}
```

**QUESTION 5**

a. Define of syntax Matlab by each of the following general function below:

(8 marks)

- i) whos:
- ii) clear:
- iii) cd:
- iv) dir:
- v) pwd:
- vi) echo:
- vii) format:
- viii) diary(filename):

b. Identify the syntax help function in Matlab.

(2 marks)

**QUESTION 6**

Create coding in MATLAB to do following task:

a. Clear the variable b.

(2 marks)

b. Clear all information in the workspace.

(2 marks)

c. A logarithmically (log 10) spaced row vector k starting with 0.001 ending with 1000 and having 50 elements.

(6 marks)

**[60 MARKS]**

**PART B**

This part contains of **TWO(2)** questions. Questions **Q7** will be based on C++ programming and Question **Q8** will be based on Matlab programming.

Answer ALL questions in Answer Sheet.

**QUESTION 7**

- a. Construct a program to check whether an alphabet entered by the user is a vowel or a consonant.  
(8 marks).
- b. Construct a program to find prime factor of a number. If a factor of a number is prime number then it is its prime factor.  
(12 marks)

**QUESTION 8**

- a. Construct a program to calculate volume of pyramid, cylinder, and cone using a Matlab function coding.  
(15 marks).
- b. Based on **Q8 (a)**, demonstrate the results.  
(5 marks).

**[40 MARKS]****END OF QUESTION PAPER**

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