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ONLINE FINAL EXAMINATION**

COURSE NAME : ENGINEERING SOFTWARE
COURSE CODE : DKE 2123
EXAMINATION : DECEMBER 2021
DURATION : 3 HOURS

INSTRUCTION TO CANDIDATES

1. This question paper consists of **TWO(2)** parts :
PART A (60 Marks)
PART B (40 Marks)
2. Please refer to the detailed instructions in this question paper.
3. Answer ALL questions in the answer sheet which is A4 size paper (or other paper with the consent of the relevant lecturer).
4. Write your details as follows in the upper left corner for each answer sheet:
 - i. Student Full Name
 - ii. Identification Card (I/C) No.
 - iii. Class Section
 - iv. Course Code
 - v. Course Name
 - vi. Lecturer Name
5. Each answer sheet must have a page number written at the bottom right corner.
6. Answers should be **neat and clear in handwritten form**.

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

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