UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BEJ10102
PROGRAMME	:	BEE
EXAMINATION DATE	:	JULY 2020
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS. **OPEN BOOK EXAMINATION**

THIS QUESTION PAPER CONSISTS OF **NINE (9)** PAGES

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Q1   (a)   Analyse the fragment of C++ programming in **Figure Q1(a)**. List four (4) errors contained in this program.

```
float choice;

cout<< "Please enter your choice in integer number: ";
cin>> choice;

switch (choices)
    case 1: cout<< "Your choice is Dolgona Coffee" <<endl; break;
    case 2: cout<< "Your choice is Cappuccino Coffee" <<endl; break;
    case 3: cout<< "Your choice is Americano Coffee" <<endl; break;
    case 4: cout<< "Your choice is Espresso Coffee" <<endl; break;
    case 5: cout<< "Your choice is Macciato Coffee" <<endl; break;
    default 6: cout<< "Your choice is Original Coffee";}
```
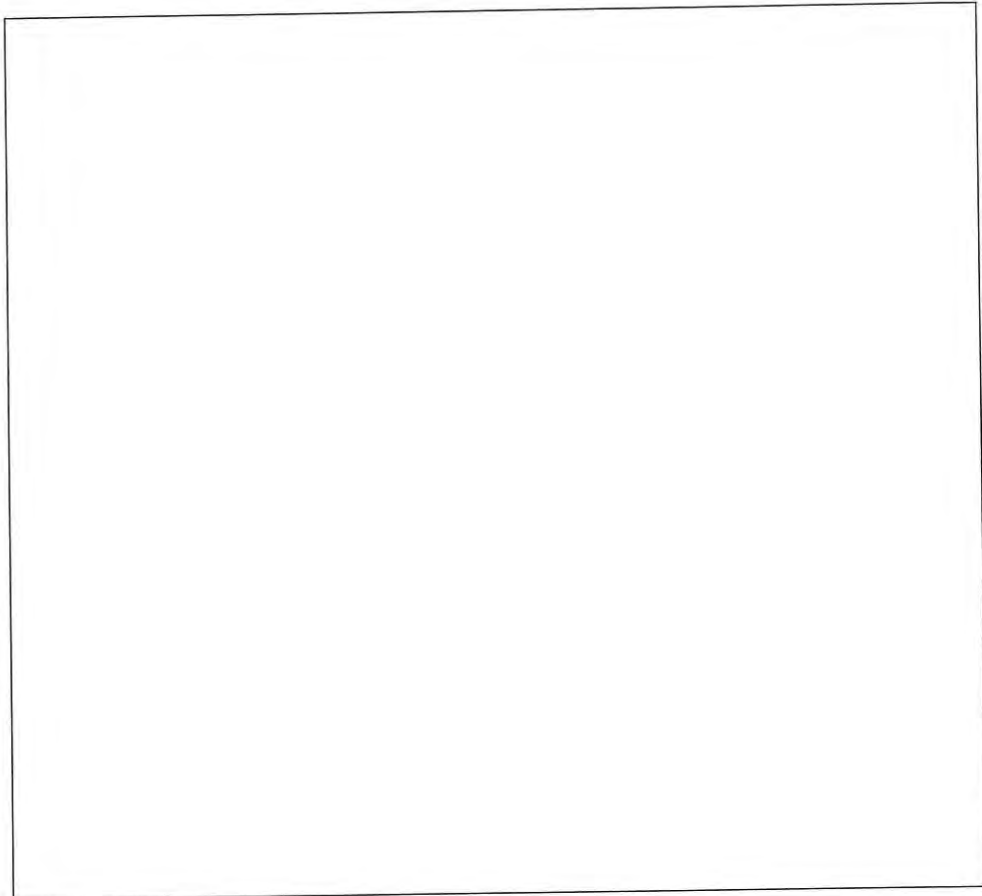
Figure Q1(a)

(8 marks)

Answer for Q1(a):

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(b)   Assume all errors are fixed. Rewrite the *switch* statement into *if-else* statement without changing its functionality.

(12 marks)

Answer for Q1(b):

3

Q2   (a)   Based on the *while* statement in **Figure Q2(a)**, answer **True (T)** or **False (F)** for (i) to (iv).

```
salary=1000,
trip=7;
while (trip < 10) {
    salary = salary + trip;
    cout<< "Salary is RM " <<salary<<endl;
    trip++;
}
```

Figure Q2(a)

(i)   The *while* loop body is repeated 4 times.

(ii)   *Salary is RM 1007* is the first sentence appears on the screen.

(ii)   The final value of *salary* is RM 1015.

(iv)   If the initial value of *trip* is changed to *trip*=11, the *while* loop body is executed at least once.
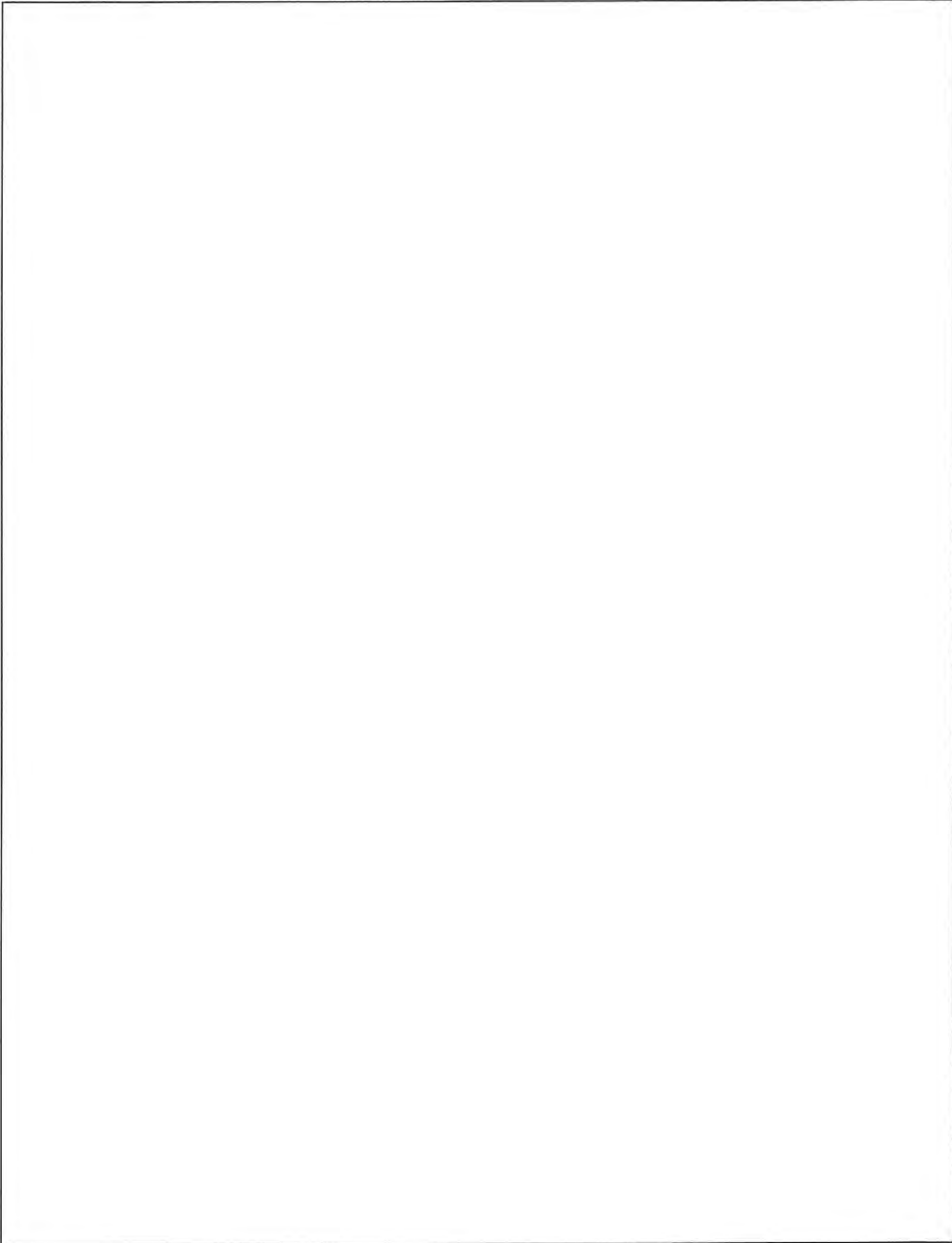
(8 marks)

(b)   Write a complete C++ program by using *for* statement to calculate and display a velocity value, as long as the time value is less than or equal to 10. The initial value of time, t is zero ($t=0$) and incremented by 1 for each repetition. **Figure Q2(b)** shows the pseudocode as a reference.

```
Begin
    Set the acceleration value, A=2.537
    Set the initial value of velocity, v0=0
    For time value, t is less than or equal to 10
        calculate velocity, v=A × t + v0
        display the value of v and t
    End for
    display "End the program."
End program
```

Figure Q2(b)

(12 marks)

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Answer for Q2(b):

Q3 (a) *#include* pre-processor directive is used to include the header file in order to reuse the functions defined in the header file. Give one example of *#include* declaration for *standard header file* and *user-defined header file* that differentiate both types of header files.

(3 marks)

Answer for Q3(a):

standard header file	:	
user-defined header file	:	

(b) Function elements consists of function prototype, function definition, and function call. Write a *double* type value-returning function definition for a function called *celsiusToFahr* that has a reference parameter *celsius* of type *double* variable. The function converts from degrees celsius to degrees Fahrenheit. The equation is given as below:

$$temp = (9.5/5.0)*celsius + 32.0;$$

(5 marks)

Answer for Q3(b):

(c)   Fill in the blanks (number 1 until 12) with correct C++ statements for the program in **Figure Q3(c)**.

```
//calculates the series and parallel equivalent
//resistance of two resistors
#include <iostream>
using namespace std;

____1_____ series ( double __2___, double __3___ );
double _____4_____ ( _____5_____ p1, _____6_____ p2 );

int main ( )
{
 double r1, r2;
 double series_r, parallel_r;

 cout<< "Enter value of resistance r1 (Ohm): ";
 cin>>r1;
 cout<< "Enter value of resistance r2 (Ohm): ";
 cin>>r2;

 series_r = series (r1, r2);

 parallel_r = parallel (r1, r2);

 cout<< "Their series equivalent is: " <<series_r <<" Ohm" <<endl;
 cout<< "Their parallel equivalent is: " <<parallel_r <<" Ohm" <<endl;

 ____7_____ 0;
}

double ____8_____ (double s1, double s2)
{
   double total_series;

   total_series=s1+s2;
   return _____9_____;
}

double parallel (double ___10___, double ___11___)
{
   double total_parallel;

   total_parallel=(p1*p2)/(p1+p2);
   return _____12_____;
}
```
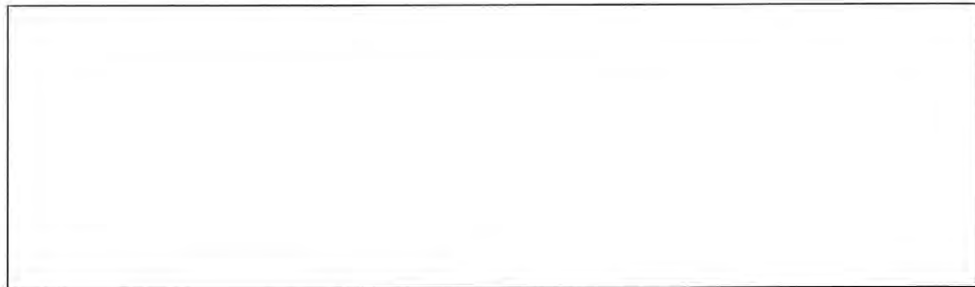
Figure Q3(c)

(12 marks)

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Q4   (a)   How would you illustrate the following declaration?
                  int *test_mark*[ ] = {98, 73, 62, 85};

(5 marks)

Answer for Q4(a):

```
```

(b)   Examine the following program.

```
#include <iostream>
#include <cstring>
using namespace std;

int main ( ) {
   char MCO1[30];
   char MCO2[50] = "stay safe ";

   cout<<"Enter one tagline: ";
   cin.getline(MCO1,30);

   strcat(MCO2, MCO1);
   cout<<"MCO tagline: " << MCO2 << endl;

   return 0;
}
```

Figure Q4(b)(i)

Based on **Figure Q4(b)(i)**, assume the user entered the tagline *stay at home*. In your opinion, do you think the program will able to display the output as shown in **Figure Q4(b)(ii)**? State a reason for your answer.

```
Enter one tagline: stay at home
MCO tagline: stay safe stay at home
```

Figure Q4(b)(ii)

(5 marks)

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Answer for Q4(b):

(c)   Fill in the blanks (number 1 until 12) with correct C++ statements for the program in **Figure Q4(c)**.

```
// Calculate elements in the volts array as the product of
// the corresponding elements in the current and resistance arrays.
#include<iostream>
using namespace std;
//function prototype
double calc_volts (double__1__[10], double___2__[10], double___3__[10]);

int main ( ) {

 double volts [10]={0.0};
 _____4_____current [10]={10.6,14.8,13.2,16.5,18.6,9.4,6.5,18.3,12.1,3.9};
 double _____5_____ [10]={4, 8.5, 6, 7.3, 9, 15.3, 3, 5.4, 2.9, 4.8};

 calc_volts (volts, _____6_____ , resistance);  //function call

 for (int i=0; ___7__ ; i++)

    cout<<"volt ["<< i  << "]" << " is: " << ___8____ [i] << endl;

 return 0;
}
//function definition
double _____9_____ (double v[10], double curr[10], double res[10]) {
 int i;
 for(int i=0; i<10 ; i++)

    v[i] = curr[i] * res[i];

 return __10___;
}
```

Figure Q4(c)

(10 marks)

-     **END OF QUESTIONS -**