UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN IIUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018

COURSE NAME	:	COMPUTER PROGRAMMING
COURSE CODE	:	BNR 20803
PROGRAMME CODE	:	BND / BNF
EXAMINATION DATE	:	JUNE / JULY 2018
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS PAPER CONSISTS OF **TWELVE (12)** PAGES

PART 1 : OBJECTIVE QUESTIONS (25 QUESTIONS, 40 MARKS)

Q1 Define the meaning of Computer.

a) Collection of program that can be loaded into main memory and executed in the CPU
b) Machine that manipulates data based on a list of instructions call program
c) Software program responsible for management and coordination of activities and sharing of computer resources
d) Programs developed to assist user completing specific task

(1 mark)

Q2 Select the true statement about RAM.

a) Preloaded with program and data that never change
b) Can be read/write anytime
c) Used to store program or data permanently
d) Used to communicate with the outside world

(1 mark)

Q3 Central Processing Unit (CPU) consists all these parts except

a) ALU
b) CU
c) OS
d) Register

(1 mark)

Q4 The following are categoried as embedded computers except

a) Tablet
b) Remote Control
c) Vending machine
d) Traffic light

(1 mark)

Q5 Computer language are divided into two categories, which are the High Level Language and the Low Level Language. Identify which language is categorized in High Level Language.

a) High Level Machine Language
b) High Level Scripting Language
c) High Level Assembly Language
d) High Level Application Language

(1 mark)

Q6 There are some procedures in program development cycle. Choose the correct sequence about program development cycle steps?

a) Coding, algorithm design, linking, maintenance and obsolescence
b) Editing in editor, algorithm design, linking, maintenance and loader
c) Problem definition, algorithm design, coding, maintenance and obsolescence
d) Editing in editor , compiling in compiler, linking, loader and execution file

(1 mark)

Q7 Define the meaning of compiler.

a) The program that bridges all the gaps and completes assembly of the program
b) Computer program that transforms/translate source code (high-level compiled language) into another computer language
c) Manipulates data based on a list of instructions
d) Collection of computer program that can be loaded into main memory and executed in the CPU of a computer

(1 mark)

Q8 Describe what is Operating System (OS).

a) Software program that responsible for management and coordination of activities and sharing of computer resources
b) Programs developed to assist user completing specific task
c) A representation of a solution to a problem
d) Tools that can be used to write a preliminary plan that can be developed into computer program

(1 mark)

Q9 Recognize the false statement about the Control Unit (CU) inside the Central Processing Unit (CPU).

a) Read instruction from main memory
b) Much faster than main memory
c) Decode each instruction
d) Move result to main memory

(1 mark)

Q10 The following are categoried as input computer hardware except

a) Mouse
b) Speaker
c) Keyboard
d) Camera

(1 mark)

Q11 In program developement software there are some file involves. Choose the file which is not involve in this process.

a) Instruction file
b) Object file
c) Executed file
d) Source file

(1 mark)

Q12 Describe what is preprocessor.

a) Loading the program into computer's memory before execution begins
b) Insert the missing sets of instruction into appropriate places to form a file that has a gaps free execution path
a) Expression or evaluation of certain value or condition to achieve final value
b) Compilation unit responsible for adding header files content in the source code

(1 mark)

Q13 Recognize the *void* meaning in the following program code.

```
int main (void)
{

}
```

a) Data declared inside main function is zero
b) Main function does not return anything
c) No arguments are being received by main function
d) Does not mean anything

(1 mark)

Q14 Choose the invalid identifier in C++ programming.

a) *Rahman
b) 340f
c) f340
d) u2c

(1 mark)

Q15 Choose the invalid keyword in C++ programming.

a) bool
b) else
c) static
d) special

(1 mark)

Q16 Data divided into 3 types, which are character, integer and floating. The following belongs to integer data types except

a) short
b) int
c) long
d) double

(1 mark)

Q17 The following are the correct Relation Operator except

a) ==
b) >
c) &&
d) +=

(1 mark)

Q18 Identifies the operator that has highest precedence.

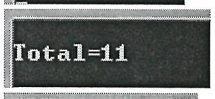
a) *
b) ++
c) ()
d) *=

(1 mark)

Q19 From the following C++ programming code, predict which one is the true output.

```
int main()
{
   int a = 2, b = 4, c = 5, Total;
   Total = a + b + c;
   cout<<"\n"<<"\tTotal="<<Total<<endl;
}
```

a) 

b) 

c) 

d) 

(2 marks)

Q20 From the following C++ programming code, predict the output of Total.

```
int main()
{
   int a = 2.4, b = 2.2,c = 2, Total;
   Total = a + b / c;
   cout<<"Total="<<Total<<endl;
   return 0;
}
```

a) 1
b) 1.3
c) 3
d) 3.5

(3 marks)

Q21 From the following C++ programming code, computes the output of Total.

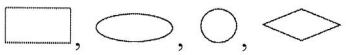
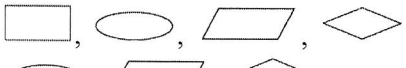
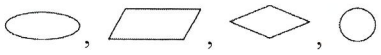
```
int main()
{
int a = 4, b = 2, Total = 20;
Total - = a + b % a - 1;
cout<<"Total="<<Total<<endl;
}
```

a) - 5
b) 3
c) 15
d) 17

(3 marks)

Q22 For the following C++ programming code calculation, which flowchart symbols are involved if converted to flowchart.

```
#include <iostream>
using namespace std;
int main ()
{
   int a = 2, b = 4, c = 1;
   a + – b,
   c = 4 * b;
   if (c >= b)
      cout<<"\n c \n";
   else
      cout<<"\n b \n";
}
```

a) 
b) 
c) 
d) 

(3 marks)

Q23 Solve the calculation for variables *c*, *d* and *e* in the following C++ programming code.

```
int main()
{
   int a = 0, b = 4, c, d, e;
   c = a || b;
   cout<<" jawapan c = "<< c ;
   d = c && b;
   cout<<" , jawapan d = "<< d ;
   e = ! d;
   cout<<" , jawapan e = "<< e << endl;
}
```

a) *jawapan c* = 4 , *jawapan d* = 1 , *jawapan e* = 1
b) *jawapan c* = 1 , *jawapan d* = 4 , *jawapan e* = 1
c) *jawapan c* = 1 , *jawapan d* = 1 , *jawapan e* = 0
d) *jawapan c* = 0 , *jawapan d* = 1 , *jawapan e* = 0

(3 marks)

Q24 Predict the output of the following C++ program code.

```
#include <iostream>
using namespace std;
int main ()
{
int O = 2, P = 3, Q = 4, Total = 2;
cout <<"\n increment decrement operator program\n";
Total += O * ++P % 2 - --Q;
cout << "\nthe Total is – " << Total << endl;
cout << "\nValue O = " <<O;
cout << "\nValue P = " <<P;
cout << "\nValue Q = " <<Q<<"\n";
return 0;
}
```

a) *Total* = -3, *O* = 2, *P* = 3, *Q* = 4
b) *Total* = 2, *O* = 2, *P* = 3, *Q* = 4
c) *Total* = 3, *O* = 2, *P* = 4, *Q* = 3
d) *Total* = -1, *O* = 2, *P* = 4, *Q* = 3

(4 marks)

Q25 Predict the output of the following C++ program code.

```
#include <iostream>
using namespace std;
int main ()
{
int a = 2, b = 3, c = 4, d = 2;
a += b = c;
d = a - c--;

cout << "a = " << a << endl;
cout << "b = " << b << endl;
cout << "c = " << c << endl;
cout << "d = " << d << endl;"\n";
return 0;
}
```

a) $a = 2, b = 3, c = 4, d = 2$
b) $a = 5, b = 3, c = 5, d = 3$
c) $a = 6, b = 4, c = 3, d = 1$
d) $a = 6, b = 4, c = 3, d = 3$

(4 marks)

- END OF PART 1 -

PART 2 : SUBJECTIVE QUESTIONS (4 QUESTIONS, 60 MARKS)

Q26 For the following statement, answer **Q26(a)** to **Q26(b)**:

Read 4 integer numbers, then display the total and average of those numbers.

(a) Produce a suitable pseudocode according to the above statement. (3 marks)

(b) Modify the pseudocode in question **Q26(a)** into programming using C++ coding.

(7 marks)

Q27 **(a)** Predict the output of the following C++ program code.

```
#include <iostream>
using namespace std;
int main() {
   char *a[ ] = { "Argentina", "Korea", "Greece", "Nigeria"};
   cout << *(a+1) << endl;
   cout << *a[0] << endl;
   cout << a[3] << endl;
   cout << a[3][1] << endl;
   return 0;
}
```

(4 marks)

(b) Draw the flowchart for the C++ codes in question **Q27(a)**. (6 marks)

Q28 **(a)** Produce a program flowchart, including a loop, required to calculate $y(t)$ from the equation:

$$y(t) = \begin{cases} -3t^2 + 5 & t > 0 \\ 3t^2 + 5 & t < 0 \\ 0 & t = 0 \end{cases}$$

for values of t between -9 and 9. The program should display each value of t and $y(t)$.

(7 marks)

(b) Convert the flowchart in question **Q28(a)** into programming using C++ coding.

(8 marks)

Q29 **(a)** When asked to create a program to find the volume of any cone, with its radius and height entered by users, a programmer created this program to implement the formula

$$V = \frac{\pi r^2 h}{3}$$

It compiles, and it runs, but it gives completely incorrect results. Serious problem lies in both the `main` and `ComputeVolume` functions. Additionally, the programmer was confused about parameters and local variables.

Rewrite the code to make this function work correctly, and also improve its use of parameters, changing main as necessary. Please note any errors throughout the program. In your corrected code, please highlight (or circle) the changes that you have done compared to the original codes.

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

double ComputeVolume(double r, double h, double ans , double r2);

int main (){
 double radius , height , ans , r2;
 cout<<" Radius : "<< radius;
 cout<< " Height : " << height;
 ans = ComputeVolume (radius , height , ans , r2 );
 cout<< " Volume :"<<ans;
}

double ComputeVolume(double r, double h, double ans , double r2)
{ r2 = r*r;
 ans = 3.14*r2*h/3;
 return ans ;
}
```

(10 marks)

(b) Design C++ program codes that will print the following output:

```
++++++++++++++++++++++Welcome++++++++++++++++++++
This is a program to print out your number array
Insert an integer number n (not more than 5):5
Calling function NumberPrint(5)...
0
0       1
0       1       2
0       1       2       3
0       1       2       3       4
0       1       2       3       4       5
Task of NumberPrint function is done!
```

where n is a positive integer less than or equal to 5. You need to include usage of `NumberPrint` function in your program with the task of printing the number array based on the user input n.

(15 marks)

- END OF QUESTIONS -