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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER III
SESSION 2018/2019**

COURSE NAME : COMPUTER PROGRAMMING
COURSE CODE : DAM31303
PROGRAMME : DAM
EXAMINATION DATE : AUGUST 2019
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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

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PART A – OBJECTIVE QUESTIONS (20 QUESTIONS)

- Q1** The _____ is a digital circuit that calculates an arithmetic operation (like an addition, subtraction, etc.) and logic operations (like an Exclusive Or) between two numbers.
- A. operating system
 - B. arithmetic logic unit
 - C. calculator
 - D. computer software
- Q2** Which of the following example can be categorized as application software?
- A. Microsoft Windows
 - B. Linux
 - C. Adobe Photoshop
 - D. Macintosh
- Q3** Which of the following statements does not reflect to pseudocode?
- A. An informal language to helps programmer in developing algorithm.
 - B. Executed on a computer.
 - C. Helps programmer to think out a program before writing it.
 - D. Easy to convert into a corresponding programming language.
- Q4** *“Write an algorithm that will read the two sides of a rectangle and calculate its area.”*
- How many input/s and output/s can be identify in the above statement?
- A. No input and no output.
 - B. 1 input and no output.
 - C. 2 inputs and 1 output.
 - D. 2 inputs and 2 outputs.

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Q5 Which of the following is **NOT** types of programming errors?

- A. Runtime errors
- B. Logic errors
- C. Compiler errors
- D. Syntax errors

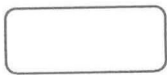
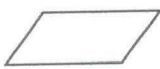

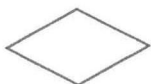
Q6 Which of the following operators is a logical operator?

- A. !=
- B. %
- C. =>
- D. &&

Q7 Decrement postfix operator for j is _____.

- A. j--
- B. --j
- C. j -= 1
- D. j =- 1

Q8 Choose the correct symbol for flowchart.

	Symbol	Meaning
A.		Process
B.		Input/Output
C.		Start/End
D.		Process

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Q9 *“This function allows us to interact with the program that is written to receive input from the user”*

The above statement refers to

- A. printf()
- B. main()
- C. scanf()
- D. putchar()

Q10 The function _____ is normally written before the main function.

- A. call
- B. reference
- C. definition
- D. prototype

Q11 The number of repetition performed by the *for* statement below is?

```
for(int i=0;i<=8;i++)
```

- A. 6
- B. 7
- C. 8
- D. 9

Q12 Selection structure can be written in a form of the statement below **except**:

- A. if...else statement
- B. while statement
- C. nested if statement
- D. switch statement

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- Q13** The keyword used to transfer control from a function back to the calling function is:
- A. switch
 - B. go back
 - C. goto
 - D. return
- Q14** Which of the following is not a function concept?
- A. Function parameter
 - B. Function prototype
 - C. Function definition
 - D. Function call
- Q15** Which of the following is the proper declaration of a pointer?
- A. int x;
 - B. int &x;
 - C. int *x;
 - D. ptr x;
- Q16** Which of the following gives the value stored at the address pointed to by pointer a?
- A. a;
 - B. val(a);
 - C. *a
 - D. &a
- Q17** The _____ performs an indicated action when the condition is true; otherwise the action is skipped.
- A. if selection
 - B. if...else statement
 - C. switch statement
 - D. while statement

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- Q18** Which of the following is a properly defined struct?
- A. struct {int a;}
 - B. struct a_struct {int a;}
 - C. struct a_struct int a;
 - D. struct a_struct {int a;;}
- Q19** What are the advantages of arrays?
- A. Easier to store elements of same data type
 - B. Used to implement other data structures like stack and queue
 - C. Convenient way to represent matrices as a 2D array
 - D. All of the mentioned
- Q20** Which of the following is a proper way to initialize an array in C?
- A. int arr[3] = {1,2,3};
 - B. int arr[3] = (1,2,3);
 - C. int arr(3) = {1,2,3};
 - D. int arr(3) = (1,2,3);

(20 marks)

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PART B – TRUE/FALSE QUESTIONS (15 QUESTIONS)

No	Statement	TRUE / FALSE
Q21	Computer systems divided into three components: hardware, software and memory.	
Q22	A compiler will execute a machine-readable to human readable form.	
Q23	A variable has a name <i>number</i> is equivalent to variable named <i>Number</i> .	
Q24	A <i>do while</i> loop guaranteed statements inside it to execute at least one time.	
Q25	Evaluating (1 && !(0 1)) will give a TRUE results.	
Q26	It is correct to declare a constant as follows: #define PI 3.14;	
Q27	Comment is a text surrounded by /* and */ is ignored by compiler.	
Q28	(7 > 9) (6 != 8)	
Q29	A string can be initialize as follows: char animal[] = "lion";	
Q30	The escape '\n' means new line.	

No	Expression	Output	TRUE / FALSE
Q31	<pre>#include <stdio.h> main() { int a,b,c,d,e; a = 6; b = 2; c = 15; d = a*b*c; e = (d + 165) / 166; printf("e=%d\n", e); return 0; }</pre>	e=2	

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<p>Q32</p>	<pre>#include<stdio.h> main() { int m,n,p,r,s; m = 2; n = 6; p = 5; r = 4; s = 10; m*=n-p*r/s; printf("m=%d",m); return 0; }</pre>	<p>m=5</p>	
<p>Q33</p>	<pre>#include<stdio.h> main() { int i,j; i =10; j =!i>14; printf("j=%d",j); return 0; }</pre>	<p>j=1</p>	
<p>Q34</p>	<pre>#include<stdio.h> main() { int y = 100; int x = y % 7; printf("x=%d\n", x); return 0; }</pre>	<p>x=2</p>	
<p>Q35</p>	<pre>#include<stdio.h> main() { int i = 1; while(i++<=5) printf("%d ",i++); }</pre>	<p>2 4 6</p>	

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PART C – PARTIAL PROGRAMMING

Q36 (a) Compile and display the output of this program.

```
#include<stdio.h>
main()
{
    int a=3, b=2, c=1, d=4;
    b++;
    printf("%d\n", a--);
    printf("%d\n", 2+b--);
    printf("%d %d %d %d\n", a++, b, ++c, d+1);
    return 0;
}
```

(6 marks)

(b) Calculate and identify the value for each of the expressions below:

```
#include<stdio.h>
main()
{
    int p = 20, r = 6, s = 10;
    int y;

    y = QUESTION;
    printf("%d", y );
    return 0;
}
```

No	y = QUESTION	Calculation	Output, %d
i.	p % r		
ii.	p + 2 * 6 / r - 10		
iii.	(r > s) (p > 0)		
iv.	(4 + r / 3) % (p / 4 + s / 5)		
v.	(p - s) * r		

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(10 marks)

(c) Predict the output of this program

```
#include<stdio.h>
void square (int a, int b);
main ()
{
    int a=5;
    int b=8;
    square (a,b);
    return 0;
}
void square (int x, int y)
{
    printf("Square of %d is %d\n",x,x*x);
    printf("Square of %d is %d\n",y,y*y);
}
```

(4 marks)

(d) Write a C++ program that displays the following pattern:

```

    ooo
   o  o
  o  o
 o  o
ooo
```

(4 marks)

(e) Find **six (6)** error in this program.

```
#include <stdio.h>
main
{
    /* Computes the dimensional weight of a box from input provided by the user
    int height, length, width, volume, weight
    printf("Enter height of box: ");
    scanf("%d", &height);
    printf("Enter length of box: ");
    scanf("%d", &length);
    printf("Enter width of box: ");
    scanf("%d", &width);
    volume = height * length * width;
    weight = (volume + 165) / 166;
    printf("Volume (cubic inches): %f\n", volume);
    printf("Dimensional weight (pounds): %d\n", weights);
```



(6 marks)

PART D – PROGRAMMING

Q37 Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. In mathematical form:

$$BMI = \frac{weight (kg)}{height (m^2)}$$

BMI is an inexpensive and easy-to-perform method of screening for weight category, for example underweight, healthy weight, overweight, and obesity. This category is shown in Table 1. Usually, people are only interested to know their weight category since this directly related to human health.

Table 1: Category of BMI

BMI	Weight Category
Below 18.5	Underweight
18.5 – 24.9	Healthy Weight
25.0 – 29.9	Overweight
30.0 and Above	Obese

From above scenario, answer following question:

- (i) Identify two (2) inputs. (2 marks)
- (ii) Identify the output. (1 mark)
- (iii) Write the algorithm to represent how to calculate human BMI. (7 marks)
- (iv) Develop a program to calculate human BMI using C programming. (10 marks)

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Q38 En Ahmad wants to promote saving culture among his children on his own way. Every time his children save more than RM100.00 per month, he will top up another RM25.00 as a reward. If their saving is less than RM100.00, RM5.00 will be deducted from their saving.

From statement above, answer following question:

- (i) Identify the input. (1 mark)
- (ii) Identify the output. (1 mark)
- (iii) Draw a flowchart to calculate amount of saving his children can save per month (4 marks)
- (iv) Develop a program using C language to calculate amount of saving his children can save per month. (4 marks)

- END OF QUESTION -

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