



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2016/2017**

COURSE NAME : COMPUTER PROGRAMMING  
COURSE CODE : BNJ 20802 / BNP 30102  
PROGRAMME CODE : BNB / BNC / BNG / BNL / BNM  
EXAMINATION DATE : DECEMBER 2016 / JANUARY 2017  
DURATION : 2 HOURS  
INSTRUCTION : ANSWER ALL QUESTIONS

**TERBUKA**

THIS PAPER CONSISTS OF FOUR (4) PAGES

Q1 (a) A computer can be defined as a machine that manipulate data based on a list of instructions called program. Computer consist of hardware and software. The physical part of computer is called computer hardware.

(i) Describe in detail typical hardware of a computer an include the diagram to support your explanation

(7 marks)

(ii) Briefly explain the following computer programming terms

(a) Operating system

(2 marks)

(b) High-level scripting language

(2 marks)

(iii) State the differences between pseudocode and flowchart and how both can help in coding implementation

(3 marks)

(b) A written C++ code are given below

```
#include <iostream>
using namespace std;
int main()
{
    int a=5, b=7, c=9, d=3, sum=7;
    a += 5 - b;
    d = c %= 2;
    sum *= 5 % b++ + c / ++d;

    cout << "\nThe sum is \t" << sum << endl;
    cout << "\nValue a =\t" << a--;
    cout << "\nValue b =\t" << b;
    cout << "\nValue c =\t" << ++c;
    cout << "\nValue d =\t" << d;

    return 0;
}
```

Estimate the value of a, b, c, d and sum by showing detailed calculation. Illustrate the exact display if the program is executed on computer screen.

(11 marks)

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- Q2** (a) In control structure, several option can be implemented, either using selection or repetition, to manipulate the flow of the program. However, `break`, `continue` and `goto` keyword can also be used to control the program flow, with certain restriction. Discuss in detail, the function of the keyword, where it can be implemented and the limitation of all **THREE (3)** keyword mentioned.

(9 marks)

- (b) Every computer programming will go through a process called program development cycle or software development method. State all the process

(5 marks)

- (c) The following program has errors. Locate the errors and rewrite the correct program code.

```
#includes <iostream>
using namespace std
int processfunc(int x, int y, int z);
int main();
{
    int a,b,c,d;
    cout>>"\nPlease enter a b c value\n";
    cin>>a;
    cin>>B;
    cin>>c;
    d=processfunc(a,b,c);

    cout << "\n\na = << a;
    cout < "\nb = " << b;
    cout << "\nc = " << c;
    cout << "\nd = " << d;
    return 0;

int processfunc(int x, int y, int z)
{
    int w;
    w = x * y / 2 - z
    return w;
}
```

(11 marks)

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**Q3** As a safety engineer in a car manufacturing company, you need to develop a simple system or program that detect or sense the car crash and immediately deploy an airbag when crash occur at the speed equal or faster than 40km/h. If an accident (crash) happen at speed slower than 40km/h, an airbag will not deploy. Though, both condition of the crash will turn ON hazard light automatically. For practicality of the program development, assume crash detector as 1 when crash is detected and 0 for otherwise (no crash is detected). While, airbag is 1 for an airbag deployment and 0 for no airbag deployment

- (a) Analyze input, output and the process of your system (4 marks)
- (b) Illustrate the flowchart for above system (7 marks)
- (c) Construct the C++ program based on your flowchart in **Q3(b)** (14 marks)

**Q4** (a) Most of the time, programming instruction manipulate data. Which means that, data play an important role in programs. Discuss the types of data available, that can be used in the computer programming (5 marks)

- (b) (i) Define the function in computer programming (2 marks)
- (ii) Discuss in detail how function work and the benefits (advantages) of using function in computer programming (7 marks)

(c) Prepare a program that display total and average from 6 input scores. Both total and average calculation should be in two different function. Total and average are display in the main function. Solve the problem using function with argument and with return value (11 marks)

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- END OF QUESTIONS -