



# FOUNTAIN UNIVERSITY, OSOGBO, NIGERIA.

P.M.B.4491, OSOGBO, OSUN STATE

COLLEGE OF NATURAL AND APPLIED SCIENCES

DEPARTMENT OF MATHEMATICAL AND COMPUTER SCIENCES

SECOND SEMESTER EXAMINATION 2021/2022 SESSION

CP5202: COMPUTER PROGRAMMING II

Credit Unit/Status:3 (C)

Time Allowed: 2 hours

13/08/2022

INSTRUCTION(S): ANSWER ALL QUESTIONS IN SECTION A AND ANY OTHER 3 QUESTIONS IN SECTION B

- Q1. What are header files in C and what are they used for.  
Explain what each of these header files are used for in C  
<Math.h> (ii) <string.h> (iii) <conio.h> (iv) <stdio.h> [ 5 Marks]
- Q2. Explain what each of the following commands is used for in C programming. Give an example of its correct usage  
(i) scanf() (ii) printf() (iii) getchar() (iv) puts() (v) for (J=0, J<=5, J++) [5 Marks]
- Q3. Write a declarative command for each of the following  
(i) Three floating-point variables x, y, xz  
(ii) Two integer variables discounted amount, discount  
(iii) A Constant floating point value  $\pi=3.142$  ;  
(iv) Two strings, each of fifty five characters, called address1 and permanent address  
(v) A double precision variable P value  $=9.8.23956719541 \times 10^{-13}$  [5 Marks]
- Q4. Give a skeletal description of the structure of a C program and explain its various components [4 Marks]
- Q5. Write a simple interactive C program to print all odd numbers from 1 to 50 [5 Marks]

## SECTION B

ANSWER ANY 3 QUESTIONS FROM HERE

- B1) Write a program which computes the Net Balance of a customer who uses a bank's ATM machine to make several transactions. The input to the program include the customers' Account number, Name, current balance, transaction code( C for credit Transaction and D for Debit Transaction), Transaction Amount( assume 5 transactions in all). The output is Customers Account Number, Name, Old Balance and Net balance [ 7Marks]
- B2) Write a code fragment for the following:  
If amount is greater than 75000 and quantity is below 300 Or if quantity is above

65000 and order status is "REGULAR" print the message "The customer is qualified for yearly discount of 50%" [5 Marks]

B2 (a) In C, there are 3 dominant ways of how if statement can be implemented List the 3 if statements and write syntax for each [6 Marks]

(b) Write an interactive C program which inputs two integer values n1,n2 and picks the smaller of the two numbers [6 marks]

B3 a) According to Newton's universal law of gravitation, the force F between two bodies with

mass  $M_1$  and  $M_2$  is given as  $F = \frac{K(M_1 M_2)}{d^2}$ , If the gravitational constant K is  $6.67 \times 10^{-8}$ .

Write a program which accepts the mass for two bodies and the two bodies to compute the force F [7 Marks]

b) Prepare analgorithm or flowxhart for the above program above in b3 a)

[5 Marks]

B4 Write a C program to Calculate the pressure V of air in an automobile tire, using the Formula

$$PV = 0.37m(T + 460)$$

where P = pressure, pounds per square inch (psi)

V = volume, cubic feet

m = mass of air, pounds

T = temperature, degrees Fahrenheit

The tire contains 2 cubic feet of air. Assume that the mass is 932 pounds

Note:

This equation will first be transformed to make p the subject of the formular

$$PV = 0.37m(T + 460)$$

[7 Marks]

$$V = \frac{0.37m(T + 460)}{P}$$

(b) Predict the output of the following program. Show clearly how you obtain the answer

```
1. main()
{
    float cost;
    float tax,luxury,total;
    luxury = 0.0;
    cost = 55000.0;
    tax = cost * 0.10;
    if(cost > 35000.0)
    {
        luxury = cost * 0.15;
        total = cost + tax + luxury;
        printf("TOTAL = %f",total);
    }
    else
    {
        Cost = 50000.00;
        Tax = cost * 0.20;
```

```
Luxury = cost * 0.5;  
total = cost + tax + luxury;
```

```
}  
return(0); \
```

[5 Marks]

- B5 Fountain Ventures supermarket sells 4 different types of items namely Soft Drinks, Biscuits, Beverages and Recharge cards. The supermarket opens 7 times a week. Suppose the daily sales figures on each category of items are kept separately to facilitate accountability.

If we assume the weekly sales total as the mean weekly sale on each a category of items, Compute the cumulative monthly sales figure. The input to the program includes sales persons id, name, daily sales proceed on each category of items. Generate an appropriate output for your program

- Prepare an algorithm that computes the weekly sales figures on each category of items and the cumulative sales for the week. [5 Marks]
- write a program to compute the weekly sales figures on each category of items and the cumulative sales for the week. [7 Marks]