



BABCOCK UNIVERSITY
ILISAN-REMO, OGUN STATE, NIGERIA.
SCHOOL OF COMPUTING AND ENGINEERING SCIENCES
COMPUTER SCIENCE DEPARTMENT

COURSE: Introduction to Programming in C (COSC101)

SESSION: 2017/2018

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INSTRUCTION: Attempt all questions in Section A, 2 in Section B and all in section C

FIRST SEMESTER EXAM

SECTION A (Attempt all) (Total marks: 10)

1. Which one of the following is a primitive data type in C language: A. int B. array C. union D. struct	11. What is the final value of count in the following code extract: int i, count = 0; for (i = 2; i < 10; i++) count++;
2. Program execution is done in the : A. RAM B. Hard Disk C. CPU D. CD-ROM	12. What is the result of the following division operation: 17 % 5 =
3. C is alanguage. A. Object Oriented B. Procedural C. weakly-typed D. Machine	13. Dividing a value by zero is categorized under what type of error:.....
4. A C language program runs on translator called: A. Interpreter B. Compiler C. Assembler D. Dev C/ C++	14. Write the appropriate declaration for an 80-element character array named message :
5. The symbols used in an assembly language are A. Codes B. Mnemonics C. Assembler D. All of the above	15. Who invented C language
6. C program execution starts from A. begin() B. class() C. main() D. void	16. What does the following represent in creating a function: void factorial(int n);
7. These are properties of algorithm except: A. Finiteness B. Must have an Input C. Must have an Output D. Must be Unambiguous	17. Correct the error in the following line of code: int long grade = 22;
8. what is the output of the following code snippet: int a = 2, b = 3; if(a == b) printf("This is not"); A. This is not B. This is C. a == b D. There is no output	18. Specify the declaration and initialization for character variable named state having initial value T.
9. The preprocessor directive used in defining a symbolic constant is: A. #include B. Math.h C. stdio.h D. #define	19. The compiler executes comments in a program: A. True B. False
10. After debugging a code, what next do you do to test your update: A. Run B. Compile and Run C. Update D. print the code	20. Incorrect formula belongs to what type of error:.....

SECTION B (Attempt any 2 questions) (10 marks each)

1. A software is to compute the monthly *takehome* of all category of employees of an establishment. The employee taxation is based on the following constraints:
 - If basic salary is less than or equal to N5000, 5% of basic salary is deducted as tax otherwise 8% deducted.
 - Also 10% of the employee gross pay should be deducted as part of pension scheme.
 - It is require that each employee pay slip should contain employee number, name, total allowance, tax, basic salary, gross pay and Net pay.

Analyze this problem, present the input data, output information and processing requirement and then draw a flowchart or a pseudocode representing the procedure for the implementation of the software.

HINTS:

- * Total allowances = Housing + Transport
- * Gross Pay = Basic salary + Total allowances
- * Net pay = Gross pay - (Tax + pension)

2. An NGO desires to stir primary school pupils' interest in simple arithmetic. You are contacted to develop an application that will act as a calculator to perform simple arithmetic operations, namely, **addition**, **subtraction**, **multiplication**, and **division**. Thus, develop this application using function principles in C programming language.
3. A Car Manufacturing firm produces three types of vehicles namely Salon cars, Jeeps and Buses. It costs the firm 10,000 dollars to manufacture a Salon car, 23,000 dollars to manufacture a Jeep and 27,000 dollars to manufacture a Bus. The selling price of each Salon car is 12,000 dollars, the selling price of each Jeep is 27,250 dollars while the selling price of each Bus is 29,199 dollars. The firm pays a tax of 10% on the sale of each Salon car, 12% on the sale of each Jeep and 14% on the sale of each Bus. Determine the monthly profit in dollars of the firm in a month in which it sold 25 Salon cars, 46 Jeeps and 37 Buses.
 - i. By problem decomposition, identify the input, processing and output requirements
 - ii. Draw a flowchart to depict the solution to the problem
 - iii. Write a C program to solve the above problem
4. a) A restaurant manager consults you to develop a weight-driven menu application that will help them serve their customers right type of food as complimentary breakfast depending on their weight. The following weight condition and suggested menu are given for breakfast:

10-15kg	Egg, cereal, milk, bread, moinmoin, munchies, potatoes, beverage, fish, beans
16-40kg	Boiled yam, cereal, milk, boiled potatoes, boiled egg, vegetable, porridge, fish, meat, beans
41-60kg	Egg, cereal, milk, bread, moinmoin, munchies, potatoes, beverage, slightly creamed coleslaw

61-80kg	Uncreamed coleslaw, watermelon, cereal, vegetable with dried fish, porridge, beans, moinmoin
81-90kg	Beans, moinmoin, watermelon, cereal, vegetable
91kg and above	Vine seedless grape, fruit salad, beans, moinmoin,

With the use of compound-if, develop an application for this restaurant.

4.b) With the use of for...loop and a one-dimensional array, store your desired scores in all the courses you are taking this first semester.

SECTION C: Alternative to Practical (Attempt all) (Total marks: 10)

1. Locate the error in the following program and correct it:

```
#include <stdio.h>
int main()
{
    int sum, score;
    score = 70.5;
    sum = 0;
    sum = sum + Score;
    printf("The sum is %d", sum);
}
```

2. Specify the buggy lines of code and write out the correction

```
#include <stdoh>
int main()
    int x, y;
    x = 9;
    float z = x + y
    printf("You've got it ", z);
```

3. Draw/map out the order of evaluation of the operators used in the following (operator precedence):

$$a * (b + c) + d/e$$

God will see you through!