

BABCOCK UNIVERSITY

ILISAN-REMO, OGUN STATE, NIGERIA.

SCHOOL OF COMPUTING AND ENGINEERING SCIENCES

COMPUTER SCIENCE DEPARTMENT

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| COURSE: Introduction to Programming in C (COSC101) SESSION: 2015/2016 |
| LECTURERS: Adekola Daniel, Akande Oyebola , Ogu Emmanuel, Joshua V.(PhD) |
| INSTRUCTION: Attempt all questions in Section A, 3 in Section B and all in section C |
| **FIRST SEMESTER EXAM** |

**SECTION A (Attempt all)**

|  |  |
| --- | --- |
| 1. Elements in an array are identified by a unique: A. data type B. order  C. subscript D. value | 11. How many times does the loop run?  for (j = 2; j <= n; j++) |
| 2. You must specify void in prototype if a function does not have any arguments passed:  A. True B. False | 12. How many times does the termination condition in the following loop execute  for (j = 1; j <= 10; j++) |
| 3. Which of the following languages is a subset of C++ language?  A. C language B. Java Language  C. C# language D. B language | 13. State one benefit of writing a program using functions: …………………………. |
| 4. Which one of the following is not a primitive data type in C:  A. float B. array  C. int D. char | 14. what happens to a line of code written after return statement……………………………. |
| 5. A C language program runs on:  A. Interpreter B. Compiler  C. Assembler D. Dev | 15. The **do…while(condition)** construct characteristically execute in what number of times |
| 6. C program execution starts from   1. begin() 2. class() 3. main() 4. static void | 16. Dividing a value by zero is categorized under what type of error :………………… |
| **7. In** C Programming **which one of the following is string termination character?**  A. ‘\0’ B. ‘\n’ C. ‘\b’ D. ‘\t’ | 17. Who wrote C language, where, and when? |
| 8. what is control (flow) construct exhibited in the following lines of code and what is last value of x:  x =10;  x = x + 2;  x = x \* 2; | 18. write the prototype of a function of your choice, revealing its return type and parameters |
| 9. what is the output of the following code:  int a = 2;  int b = 3;  if(a = =b) printf(“This cannot be seen"); | 19. write how the function declared in 18. above will be called. |
| 10. Consider int x = 9/2; what is the value of x | 20. 7 % 4 = ? |

**SECTION B (Attempt any 3 questions)**

1. a) 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 and draw a flow chart showing the procedure for the implementation of this software

* + - Total allowances = Housing + Transport

HINTS:

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

1. State or draw out the order of evaluation of the operators used in the following:

X = 8 + 15 \* (6 – 2) -1

1. a) Using functions, write a C program to calculate the area and circumference of a circle by receiving the radius as input from the user. (Use pi = 3.142).

Hint: your program should have a main function and two other functions to perform these tasks.

1. Use a loop staement to output the element in the following array named t:

float t[ ]= {1.0, 3.4, 2.5, 9.0, 7.5, 5.0, 4.0 };

1. a) Write a C program to calculate the area and perimeter of any shape of your choice (except circle). All formulae used for calculation should be clearly shown within the codes.
2. Explain what you understand by correctness property of an algorithm

4 a) Mrs Alli is a dealer of swiss lace in Idumota market, she sells different grade of swiss

lace. The grade of clothe is in five categories, and each category has specific price rate as

follows:

Grade 1: ~~#~~100, 000:00

Grade 2: ~~#~~250, 000:00

Grade 3: ~~#~~380, 000:00

Grade 4: ~~#~~500, 000:00

Grade 5: ~~#~~620, 000:00

Due to large in-flow of customers, her attendants are always making mistake of price related to each grade. Therefore, Mrs Alli contacted you to develop a simple application, which will help to correctly match grade with price.

Using switch case construct, write a C program that takes in various customers’ choice and display appropriate cost.

b) State a computer’s four major functions

**SECTION C: Attempt all**

1. Rewrite the following code as you would expect a successful compilation

//Program to compute area of a circle

#include<stdio.h>

#define PIE 3.142;

float area (float radius) //function prototype or declaration

int main()

{

float radius;

printf("Input the radius %d " ) ;

scanf("%d", radius);

printf("Area is %f ", area(radius));

}

float area(float r); //function definition

{

int circle;

circle=PIE\*radius\*radius;

return circle;

}

2.

//Consider the following program snippnet

:

:

if(hungry==yes)

{

if(choice==rice)

{

printf("Have a plate of rice");

else

printf("Wait for beans");

}

else

printf("Have a bottle of ginger-drink");

}

1. What will be the output if the first “if” evaluates as false?
2. What will be the output if the second “if” evaluates to be true?
3. What will be the output if the second “if” evaluates to be false?

*God Bless You*