****

**KABARAK UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**MAIN CAMPUS**

**SECOND SEMESTER 2020/2021 ACADEMIC YEAR**

**EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CS/CSF/ACTS/TLCM**

**COMP 111/112: INTRODUCTION TO PROGRAMMING WITH C**

**STREAM: YIS1 TIME: 2:00-4:00PM**

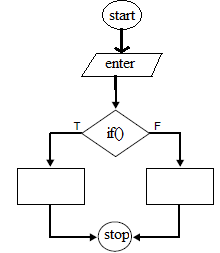
**EXAMINATION SESSION: JAN.-APRIL DATE: 20/04/2021**

**INSTRUCTIONS TO CANDIDATES**

1. **Answer Question 1 and any other two questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**
3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Edit your work for language and grammar errors.**
6. **Follow all the instructions in the answer booklet**

**QUESTION ONE [30 MARKS]**

1. Define the following C programming terms: (2 Marks)
2. Variable
3. Syntax
4. Discuss THREE major types of errors in C programs (3 Marks)
5. Briefly explain any TWO rules of naming a variable in C programming (2 Marks)
6. Given the flowchart in **figure 1** below, write a program in C that prompts the user for two integer numbers, compares them and adds them only if the first number is less than the second number, otherwise subtract them and displays the output in each case. (6 Marks)



**Figure 1: Flowchart**

1. Define a Token and state two examples of tokens in C (3 Marks)
2. Write a program in **C** language that would prompt the user for the radius of a circle, and calculates the area of that circle. (4 Marks)
3. Define a control statement and list two examples of it (3 Marks)
4. Write a program in C to test if a given number is odd or even (4 Marks)
5. Define an array as used in **C** language (1 mark)
6. Explain the advantages of using arrays in C (2 Marks)

**SECTION B: ANSWER ANY TWO QUESTIONS**

**QUESTION TWO [20 MARKS]**

1. With an example show how each of the following operators are used in **C** programming:

i. Logical operators and Relational operators (4 Marks)

1. Given the following five elements of an array: **int mark[5] = {19, 10, 8, 17, 9}**;, write a **C** code to show how these elements would be displayed on the screen (4 Marks)
2. Define a function and state two types of functions in C language (3 Marks)
3. Explain the meaning each of the following two terms when applied in programming:
4. Call-by value (2 Marks)
5. Call-by reference. (2 Marks)
6. In relation to Q(d) above, what is the concept of the following C code? (2 Marks)

void swap(int x, int y);

int main ()

{ int a = 7, b = 4;

swap(a, b);

printf("The values after swap are a = %d and b = %d\n", a, b);

}

void swap(int x, int y)

{ int temp;

temp = x;

x = y;

y = temp;

printf("Swapped values are a = %d and b = %d\n", x, y);

}

1. Show the exact output of the above code (3 Marks)

**QUESTION THREE [20 MARKS]**

1. What would be the exact output of the following code: (5 Marks)

#include<stdio.h>

int main()

{ if(1<2)

{

if('A'=='n')

{

if(1 != 0)

{ printf("Yes 4 is less than 6\n");

printf("And A is equal to A\n");

printf("But 1 is not equal to 0\n");

} }

}

return 0;

}

1. Briefly explain the function of the ***Continue*** command in a loop (2 Marks)
2. Discuss the exact output of the below program code? (5 Marks)

#include<stdio.h>

main()

{

int i = 0;

while(i< 6)

{

i++;

if(i == 5) continue;

printf("%d, ", i);

}

return 0;

}

d).Explain THREE primary data types in C (6 Marks) e) Explain the meaning of this statement, “C programming is a mother language”

(2 Marks)

**QUESTION FOUR [20 MARKS]**

1. i) Briefly discuss the function of the Break command in a loop (2 Marks)

ii)What is the exact output of the following C code? (6 Marks)

#include<stdio.h>

main()

{

int i = 0;

while(i< 6)

{i++;

if(i == 4) break;

printf("loop iteration is %d,", i);

printf("Go to the next round\n");

}

return 0;

}

1. Write a code using a**for... loop** to display exactly the following output: (5 Marks) **2,4,6,8,10,**
2. List any 4 keywords available in C programming language (2 Marks)
3. What shall be the exact output of the following Cprogram shown below? (5 Marks)

#include <stdio.h>

int main()

{

int x;

x = 0;

do

{

printf( "Hello, George!\n" );

}

while ( x != 0 );

getchar();

}

**QUESTION FIVE [20 MARKS]**

1. Show the output of the following C program code: (6 Marks)

int main()

{

int a = 6;

int b = 10;

int c = 3;

while(c > 0)

{

a = a - 2;

b = b - 1;

c--;

printf("variable a is %d, and variable b is %d\n", a, b);

}

return 0;

}

1. Write a program using a ***while* loop** to display the following as the output: **0, 1, 2, 3, 5,**

(6 Marks)

1. Study the following C program and make any correction and state output if the number entered is 7 (5 Marks)

#include<stdio.h>

int main()

{intnum, number2;

printf("enter value to store in num: ");

scanf("%d", &number1);

if(num> 10)

{

ans = num + 5;

}

else

{

ans = num \* 3;

}

printf("The value is %d", ans);

return 0;

}

1. Identify **three** types of integer constants in **C** language (3 Marks)