Name: ___________________________________________
ID: _________________________

Introduction to Programming in C
Knowledge Assessment

Instructions:

1. Write your name and ID on top left of each of the pages where space is provided.

2. Questions 1 – 18 are multiple choice questions. All of them have 4 choices except question 11. There is only 1 correct answer, circle the choice for the correct answer.

3. Question 19 is a programming question. Write a program for problem given.

Please circle the correct choice from choices given for each of the questions

1. Which of the following is NOT an operator?
   a. >
   b. !=
   c. <=
   d. <>
   
2. You have produced 10 kg of wheat in your farm and the sale price per kg is 15.25 rupees. We want to store both this information in variables wheat_weight and wheat_price_per_kg. Which data type will you suggest to use for both of these variables?
   a. float wheat_weight; int wheat_price_per_kg;
   b. double wheat_weight; float wheat_price_per_kg;
   c. int wheat_weight; float wheat_price_per_kg;
   d. int wheat_weight; double wheat_price_per_kg;

3. What is the output of the following program?
   ```c
   main()
   {
       int x=10, y=20;
       printf("x:%d y:%d ", x++, ++y);
   }
   ```
   a. x:10 y:11
   b. x:11 y:10
   c. x:10 y:10
   d. None of the above
4. When applied to a variable, what does unary operator & (ampersand) specify?
   a. Variable’s memory address
   b. Value stored in a variable
   c. Binary form of a variable
   d. None of the above

5. We have 3 variables declared below, how many bytes are required to store each of them (Note that 1 byte = 8 bits)?
   int i;
   char c;
   double d;
   a. i require 8 bytes, c require 1 byte and d require 4 bytes
   b. i require 4 bytes, c require 1 byte and d require 8 bytes
   c. i require 1 bytes, c require 8 byte and d require 4 bytes
   d. i require 8 bytes, c require 4 byte and d require 1 bytes

6. Which of the sequences swap (exchange) values of two variables x and y considering temporary variable temp?
   a. temp=x; x=y; y=temp;
   b. x=temp; temp=y; y=x;
   c. y=temp; temp=x; x=y;
   d. x=y; temp=x; y=temp;

7. What will be the output of the code below?
   for(i=0; i<5; i++)
   printf("%d ", 2-i);
   a. 2 1 0 -1 -2 -3
   b. 2 1 0 -1 -2
   c. 0 1 2 3 4
   d. None of the above
8. What will be the output of the following code when user enters 2?
   main()
   {
       char ch;
       printf("enter a value btw 1 to 3: ");
       scanf("%c", &ch);
       switch (ch)
       {
           case '1':
               printf("1");
               break;
           default:
               printf("2");
               break;
       }
   }
   a. No output but compiler error is generated
      b. 1
      c. 2
      d. No error and No output

9. How many times while loop will be executed?
   int x=0;
   while(!x)
   {
       printf("%d ", x);
   a. 1 time
      b. 0 time
      c. Loop executes forever (infinite loop)
      d. None of the above

10. Which is NOT a valid data type in C?
    a. char
       b. bool
       c. float
       d. int

11. Which of the following are the types of operators we have in C?
    a. Assignment operators
       b. Logical operators
       c. Arithmetic operators
       d. Bitwise operators
       e. All of the above
12. We have a variable with value of 25, we know that in order to store this value in computer’s memory it will have to be converted into binary format. Which of the following is the binary equivalent to 25?
   a. 10101
   b. 10111
   c. 11001
   d. 11000

13. What is the equivalent decimal value of binary number 110110?
   a. 54
   b. 55
   c. 36
   d. 66

14. Which of the c code below will correctly read the input from user and store in variable x?
   a. int x; printf("%d ", x);
   b. int x; scanf("%d ", x);
   c. int x; scanf("%d ", &x);
   d. int x; printf("%d ", &x);

15. Which of the following is responsible for conversion of C program in machine language or binary format executable so that it can run on a computer?
   a. Operating System
   b. Editor
   c. Compiler
   d. Interpreter

16. Which of the following is required to run a program on a computer system?
   a. Processor
   b. Memory
   c. Hard Disk
   d. All of the above
Name: ______________________________________

ID: _________________________

17. What will be the output of the following code?

```c
main()
{
    int x = 1;
    if (x > 0)
        printf("inside if\n");
    else if (x > 0)
        printf("inside elseif\n");
}
```

a. inside if  
b. inside elseif  
c. Error with no output  
d. inside if inside elseif

18. What will be the output of the following code?

```c
int main()
{
    int x = 0;
    if (x == 1)
        if (x == 0)
            printf("inside if\n");
        else
            printf("inside else if\n");
    else
        printf("inside else\n");
}
```

a. inside if  
b. inside elseif  
c. Error with no output  
d. inside else

Write C program for the problem below:

19. Write a C program to read 2 integer values from user and store them in variables num1 and num2. Using loop display all the values divisible by 5 and/or divisible by 10 which are in between num1 and num2 (and including num1 and num2). If a value is divisible by both 5 and 10, it should only appear once in the output.

E.g. if user input for num1 = 10 and num2 = 50 then the
Output should have values 10, 15, 20, 25, 30, 35, 40, 45, 50
Please note that the values 10, 20, 30, 40 and 50 are all divisible by both 5 and 10 but they must only appear once.
Answer: Write your program for question 19 here.