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ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION   WINTER SEMESTER, 2017-2018
DURATION: 1 Hour 30 Minutes   FULL MARKS: 75

CSE 4175: Computer Programming

Programmable calculators are not allowed. Do not write anything on the question paper.
There are **4 (four)** questions. Answer any **3 (three)** of them.
Figures in the right margin indicate marks.

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1. a) Explain the different kinds of loops available in C with examples.   8
    b) Suppose an institute follows the following rules shown in Table 1 for their grading system.   12

Table 1: Grading system for question 1(b)

Class Interval	Letter Grade
80-100	A+
70-79	A
60-69	A-
50-59	B
40-49	C
30-39	D
0-29	F

Write a program using *switch-case* that will take an integer x ($0<=x<=100$) as input and give the corresponding letter grade as output.

   c) Distinguish between constant and variable.   5

2. a) What are keywords and Variables? List the rules for naming a variable in C?   8
    b) What is the functionality of **break** and **continue**? Where do we use them and how do they   7
        differ? Explain with example.
    c) Write a program that prints the next 20 leap years.   10

3. a) The following code in Figure 1 contains some errors. Try to find out those errors and write   9
        down the correct code.

```
#include <studio.h>
int main
{
    integer main, ball, char;
    char 1at, 2bt;
    for(i=0, i=<2, i++){
        printf("this is text.")
        printf("this is %f.",a+i);
    }
}
```

Figure 1: Code for question no. 3(a)

b) Given an integer number **n**, write a C program using **while** loop to print the average of all digits. For example, n=12345. Your output should print 3. In this case, digits are 1, 2, 3, 4 and 5. If we take average of these numbers then we will get (1+2+3+4+5)/5 = 3.   10

c) What is the difference between Run time error and Compile time error? Give example.   6

4. a) Write a program that generates the following output: 10

<div align="center">

1

222

33333

4444444

555555555

66666666666

</div>

b) What are the different data types available in C? Write their format specifier.   5

c) Figure 2 contains a program written in C programming language. Write down the output of Figure 2.   10

```c
# include <stdio.h>
int main()
{
    int i=0;
    for(i=0; i<20; i++)
    {
        switch(i)
        {
            case 0:
                i+=5;
            case 1:
                i+=2;
            case 5:
                i+=5;
            default:
                i+=4;
                break;
        }
        printf("%d  ", i);
    }
    return 0;
}} /* end main */
```

Figure 2: Code for question no. 4(c)