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

MID SEMESTER EXAMINATION   SUMMER SEMESTER, 2017-2018

DURATION: 1 Hour 30 Minutes   FULL MARKS: 50

CSE 4271: 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 including **Question No. 4**.
Figures in the right margin indicate marks.

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1. a) What is typecasting? Why is typecasting required? Explain with proper example.   1+3
   b) Write a program, which takes 10000 integers as input and prints the average of those integers.   5
   c) Write down the output for the following code: 8

```c
#include<stdio.h>
int z=5;
int main(void)
{
        int x=998785,y=2;
        printf("%d\n", x%y);
        x=x%y;
        printf("%d\n", ++x);
        printf("%d\n", x++);
        printf("%d\n", --y);
        for( ; y<2;++y) z*=y;
        printf("%d\n", y);
        printf("%d\n", x*y);
        x*=100;
        printf("%d\n", x/y);
        printf("%d\n", z);
        return 0;
}
```

2. a) What are ASCII Values and ASCII Characters? Write a program to print the ASCII values of characters starting from '0' up to '9'.   2+5
   b) Write a program which will take two integers x and y as input where x<y and print the Fibonacci sequence within that range(inclusive of the values):   10

Sample Input	Sample Output
5 7	5
0 8	0 1 1 2 3 5 8
8 14	8 13

3. a) Explain the topics below: 2+2+1
    i.   Block of code
    ii.   Local & Global Scope
    iii. Function Prototype

b) Here, 1 foot = 30.48 centimeters. Write a program that converts centimeters to foot. Use a   5
function c_to_f() to perform the conversion. Call it with the number of centimeters and have it
return the value of foot inside the main function.

c) Write a program, which will take three sides of a triangle as input and print whether the   7
triangle is valid or invalid. Hints: Any side of a triangle cannot have value zero or less than
that and any two side should be greater than the third one for a triangle to valid.

Sample Input	Sample Output
0 -5 7	Invalid
3 4 5	Valid
10 2110	Invalid

[The question below is Mandatory to answer]

4. a) Write down a program which will take two integers as input and print all the prime numbers   10
within that range

b) Using nested for loop print the following shape (blank positions represent spaces):   6

```
    5
   45
  345
 2345
12345
```