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B.Sc. Engg. CSE 1st Semester 15 March 2018 (Afternoon)

# 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 4105: Computing for Engineers

**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 basic components of digital computer system with appropriate diagram. 12
   b) Describe the characteristics of a computer system. 8
   c) List three limitations of a computer system. 5

2. a) What do you understand by a compiler and an interpreter? Explain them with appropriate example. 7
   b) Explain the four stages of Compiling a **C** program. 12
   c) Differentiate between syntax error and runtime error with appropriate example. 6

3. a) What do you understand by Program Development Cycle? Explain each of the steps of Program Development Cycle with appropriate example. 13
   b) Define system software and application software with examples. 4
   c) Perform the following number conversion 8
      i. (your student ID)$_{10}$ = ( ? )$_{16}$
      ii. (26A3F)$_{16}$ = (?)$_{8}$
      iii. (123132113)$_{4}$ = (?)$_{8}$
      iv. iv) (1455)$_{6}$ = (?)$_{5}$

4. a) Let us suppose that you have to develop a program that will take a number as input and check whether it's a prime number. Now develop an algorithm that will perform the above mentioned task. You can express your algorithm either in pseudocode or flowchart. 9
   b) Convert your developed algorithm from Question 4.(a) into NS (Nassi–Shneiderman) diagram. 8
   c) Run a desk check on your developed algorithm for the input value 13. 8