

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

**MID SEMESTER EXAMINATION**  
**DURATION: 1 HOUR 30 MINUTES**

**WINTER SEMESTER, 2022-2023**  
**FULL MARKS: 75**

**CSE 4105: Computing for Engineers**

**Programmable calculators are not allowed. Do not write anything on the question paper.**

Answer **all 3 (three)** questions. Figures in the right margin indicate full marks of questions whereas corresponding CO and PO are written within parentheses.

1. a) Write an algorithm to convert a decimal number  $D$  to a base  $B$  number system. 5  
(CO2)  
(PO1)
- b) Perform the following 2's complement arithmetic assuming 4-bit computer system. Also indicate whether the arithmetic is correct or not. 5  
(CO1)  
(PO1)
  - i.  $-8 - 1$
  - ii.  $-4 - 4$
- c) What are the components of a computer system? 5  
(CO2)  
(PO1)
- d) How does speed difference of CPU, main memory and storage devices affect the performance of the computer? Why does CPU use Cache memory? 5  
(CO2)  
(PO1)
- e) Write an algorithm to calculate the GPA of a single semester. You will take the grade points and credits of all the courses as input. 5  
(CO1)  
(PO1)
2. a) Answer the followings in brief: 10×1  
(CO1)  
(PO1)
  - i. How is a Host known to others in a LAN?
  - ii. Why do we use twisted pair cables in ethernet LAN?
  - iii. Why do we use DHCP servers in a LAN?
  - iv. Why does IPv4 LAN need NAT servers?
  - v. What is the top level DNS for the domain "goog.le" ?
  - vi. Will I get a search engine response from the <http://www.google.com:50> ? Why or why not?
  - vii. Name three applications in the internet that are not web based.
  - viii. What are the client side codes that come to the browser for execution?
  - ix. Differentiate between internet and web.
  - x. How does starlink program connect you to the internet?
- b) How do you connect to the internet through an ISP? 5  
(CO1)  
(PO1)
- c) "Web is request-response protocol"- how do you send the request and how do you get the response? 5  
(CO1)  
(PO1)

- d) In the internet if hosts are known by IP addresses and application servers are known by ports, then how do we connect to the servers by URL? Explain. 5  
(CO1)  
(PO1)
3. a) Answer the followings in brief: 10×1  
i. What is the task of key-map ROM in a keyboard? (CO1)  
ii. Why will an optical mouse not work on a fine polished surface? (PO1)  
iii. How is a bit stored in a hard disk?  
iv. How is a bit stored in a flash gate?  
v. Why did LED TV come very late though LEDs were available from long ago?  
vi. Why do I/O devices have their own device controllers?  
vii. Why are flash devices faster than Hard Disks?  
viii. Which type of flash device can be used as RAM?  
ix. How does a pixel in LCD monitor work?  
x. Why does CRT monitor consume high power?
- b) Briefly describe LED monitor. 8  
(CO1)  
(PO1)
- c) Briefly describe flash device technology. 7  
(CO1)  
(PO1)