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SWE I
CSE

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

SWE 4101: Introduction to Software Engineering

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.

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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 "google" ?
 - 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
(CO1)
(PO1)
- i. What is the task of key-map ROM in a keyboard?
 - ii. Why will an optical mouse not work on a fine polished surface?
 - 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)