# (DMSIT 01)

**M.Sc.(Previous) DEGREE EXAMINATION, DECEMBER – 2015**

**(First Year)**

**INFORMATION TECHNOLOGY**

**Paper - I : Basics of Information Technology**

**Time : 3 Hours** **Maximum Marks: 70**

## SECTION-A *(3 ×15 =45)*

***Answer Any Three of the following***

***1)*** What is information system? Describe the basic concepts of information systems.

***2)*** Discuss about input and output technologies of computer hardware.

***3)*** Explain about different types of personal application software.

***4)*** Discuss about the network processing strategies.

***5)*** What is WWW? Differentiate between intranet and internet.

## SECTION-B *(5 × 4 = 20)*

***Answer Any Five of the following***

***6)*** Define information. Write about different types of information.

***7)*** Discuss about managing information technology in organizations.

***8)*** Differentiate primary and secondary storage.

***9)*** Explain about electronic data processing.

***10)*** Explain about the traditional file management system.

***11)*** What are the advantages of networks?

***12)*** Describe the evolution of internet.

***13)*** Write about the services provided by the internet.

## SECTION-C

***(5×1=5)***

***(Answer all Questions)***

***14)*** What is an organization?

***15)*** What is computer hardware?

***16)*** What is e-mail?

***17)*** What is teamware?

***18)*** What is URL?

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# (DMSIT 02)

**M.Sc.(Previous) DEGREE EXAMINATION, DECEMBER – 2015**

**(First Year)**

**INFORMATION TECHNOLOGY**

**Paper - II : COMPUTER NETWORKS**

**Time : 3 Hours** **Maximum Marks: 70**

## SECTION-A

***(3 ×15 =45)***

***Answer Any Three Questions***

***1)*** Explain in detail TCP/IP model with neat diagram.

***2)*** Explain about Network topology & its types in detail.

***3)*** What is switching? Explain different switching techniques in detail.

***4)*** Explain different routing algorithms in detail.

***5)*** What is cryptography? Explain types of cryptography with neat illustration.

## SECTION-B

***(5 × 4 = 20)***

***Answer Any FIVE Questions.***

***6)*** What is Data Communication ? Explain its components.

***7)*** Discuss about LAN, WAN and MAN.

***8)*** What is transmission media? Explain its types.

***9)*** Discuss about network technologies in detail.

***10)*** Write a short notes on naming & addressing.

***11)*** What are the services of routing? Explain.

***12)*** Write a short notes on Binary Arithmetic.

***13)*** Discuss about IP Address calculation.

## SECTION-C *(5×1=5)*

***(Answer all Questions)***

***14)*** What is topology?

***15)*** Define protocol.

***16)*** What is Datagram?

***17)*** What is internet?

***18)*** Define routing.

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# (DMSIT 03)

**M.Sc.(Previous) DEGREE EXAMINATION, DECEMBER – 2015**

**(First Year)**

**INFORMATION TECHNOLOGY**

**Paper - III : Computer Organisation**

**Time : 3 Hours** **Maximum Marks: 70**

## SECTION-A *(3 ×15 =45)*

***Answer Any Three Questions***

***1)*** Explain Computer Evolution & Performance in detail.

***2)*** What is Flop-flop? Explain D flip-flop & JK flip-flop with neat diagram.

***3)*** Explain Enabling & disabling interrupts and Handling multiple devices with interrupts.

***4)*** Explain different addressing modes with neat diagram in detail.

***5)*** Explain Booth multiplication algorithm in detail.

## SECTION-B *(5 × 4 = 20)*

***Answer Any FIVE Questions***

***6)*** Discuss about the structure of Computer with neat diagram.

***7)*** Write about the structure of a bus with neat diagram.

***8)*** What is combinational circuit? Explain its types.

***9)*** What is Decoder? Explain.

***10)*** Discuss about shift registers with neat diagram.

***11)*** Write about 1's complement & 2's complement.

***12)*** Write a short notes on addition & subtraction with signed magnitude.

***13)*** Discuss about cache memory.

## SECTION-C *(5×1=5)*

***Answer ALL Questions***

***14)*** What is Interrupt?

***15)*** Define program Counter.

***16)*** What is a bus?

***17)*** What is register?

***18)*** What is flip-flop?

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# (DMSIT 04)

**M.Sc. (Previous) DEGREE EXAMINATION, DECEMBER - 2015**

**First Year**

**INFORMATION TECHNOLOGY**

**Paper – IV : Data Structures with C**

**Time : 03 Hours** **Maximum Marks : 70**

## SECTION - A

***Answer any THREE Questions*** ***(3 × 15 = 45)***

***1)*** Discuss row major and column major representations of arrays. Explain the representation of a polynomial by using one-dimensional array and write the algorithm.

***2)*** Explain storage of strings and string operations. What is a linked list? Explain linked list operations and write routines for each of them.

***3)*** Distinguish between a stack and a queue. Write a complete specification of queue data structure. Write a C-program to convert an infix expression to postfix.

***4)*** Explain the traversals operations on a binary tree and write the algorithms. Write a C program for deletion from a threaded binary tree.

***5)*** Explain sorting on several keys with a suitable example. Write a C-program for 2-way merge sort.

## SECTION - B

***Answer any FIVE Questions*** ***(5 × 5 = 25)***

***6)*** Explain the concept of a data structure and its implementation.

***7)*** Write a C-program to add two matrices using arrays of pointers.

***8)*** What is a double linked list? Write an algorithm to insert a node into a double linked list at any position.

***9)*** Convert the following expression into postfix and prefix notations:

(A + B) * C + D/(B + A * C) + D

Write a recursive function to calculate the factorial.

***10)*** Write an algorithm to insert a node into a linked representation of a binary tree.

***11)*** Consider the following processes with their priorities:

| Process: | $P_1$ | $P_2$ | $P_3$ | $P_4$ | $P_5$ | $P_6$ | $P_7$ | $P_8$ | $P_9$ | $P_{10}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Priority: | 5 | 4 | 3 | 4 | 5 | 5 | 3 | 2 | 1 | 5 |

Assume that process having higher priority value will be serviced first. Using priority queue heap determine the sequence of processed served.

***12)*** Write the algorithm for the quick sort and illustrate it with the following 10 records:

26, 5, 37, 1, 61, 11, 59, 15, 48, 19

***13)*** Sort the following input file using the recursive formulation of 2-way merge sort:

26, 5, 77, 1, 61, 11, 59, 15, 49, 19

## SECTION - C

***Answer ALL questions*** ***(5 × 1 = 5)***

***14)*** Describe the phases in the performance evaluation of programs.

***15)*** What is a sparse matrix? How is it stored?

***16)*** Write an algorithm to concatenate two one-dimensional arrays using linked list.

***17)*** Define a tree. Give its applications.

***18)*** What is binary search?

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# (DMSIT 05)

**M.Sc.(Previous) DEGREE EXAMINATION, DECEMBER – 2015**

**(First Year)**

**INFORMATION TECHNOLOGY**

**Paper - V : OPERATING SYSTEMS**

**Time : 3 Hours** **Maximum Marks: 70**

## SECTION-A

*(3 ×15 =45)*

***Answer Any Three of the following***

***1)*** Describe the various process scheduling algorithms.

***2)*** Explain the following:

i) Bakery algorithm

ii) Peterson algorithm

***3)*** What is directory? Discuss about different forms of directories.

***4)*** Discuss about text based devices and storage disks.

***5)*** What is threat? Explain about various program threats.

## SECTION-B

*(5 × 4 = 20)*

***Answer Any FIVE Questions.***

***6)*** Explain about different types of operating systems.

***7)*** Describe the process scheduling criteria.

***8)*** Discuss the execution of Text And Set instruction.

***9)*** Explain the deadlock detection mechanism.

***10)*** Discuss about memory management schemes.

***11)*** Write about the file system functions.

***12)*** Describe how RAID is used to increase disk reliability.

***13)*** Explain about authentication using passwords.

## SECTION-C

***(5×1=5)***

***(Answer all Questions)***

***14)*** What are the functions of an operating system?

***15)*** What is multiprogramming?

***16)*** What is the use of buffering?

***17)*** What is priority scheduling?

***18)*** Define deadlock.

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# (DMSIT 06)

**M.Sc. (Previous) DEGREE EXAMINATION, DECEMBER - 2015**

**First Year**

**INFORMATION TECHNOLOGY**

**Paper – VI : DBMS**

**Time : 03 Hours** **Maximum Marks : 70**

## SECTION - A

***Answer any THREE of the following*** ***(3 × 15 = 45)***

***1)*** What is an indexed sequential file? Illustrate the construction of an indexed sequential file with a suitable example.

***2)*** What are types of pointers? Illustrate them with an example.

***3)*** List and explain different symbols of DAD and give an example of DAD.

***4)*** Describe the commands of PC-FOCUS data manipulation.

***5)*** Explain the following interactive SQL commands with an example.

a) UNION

b) INTERSECT

c) DROP VIEW

## SECTION - B

***Answer any FIVE questions*** ***(5 × 4 = 20)***

***6)*** Explain how will you establish economic justification of a database system?

***7)*** Describe one-to-many and many-to-many recursive associations.

***8)*** Write an algorithm to create a binary tree structure and apply it on: 105, 108, 103, 107, 109, 110, 101, 104, 106, 102.

***9)*** Explain hierarchical data model with an example.

***10)*** Explain BCNF with an illustrative example.

***11)*** List different DML control commands of IDMS and explain them in brief.

***12)*** Discuss the conditions of free and bound variables in tuple calculus.

***13)*** List and explain different locking protocols.

## SECTION - C

***Answer ALL questions*** ***(5 × 1 = 5)***

***14)*** What is a system?

***15)*** What is a ring data structure?

***16)*** What is internal model?

***17)*** What is the use of GET HOLD NEXT command?

***18)*** What is transaction log?