

**ASSIGNMENT - 1, DEC - 2016.**

**M.Sc. (PREVIOUS) FIRST YEAR DEGREE**

**INFORMATION TECHNOLOGY**

**PAPER- I : BASICS OF INFORMATION TECHNOLOGY**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 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) Define information. Write about different types of information.
  - 5) Discuss about managing information technology in organizations.
  - 6) Differentiate primary and secondary storage.
  - 7) Explain about electronic data processing.
  - 8) What is an organization?
  - 9) What is computer hardware?
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**INFORMATION TECHNOLOGY**

**PAPER- I : BASICS OF INFORMATION TECHNOLOGY**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 1) Discuss about the network processing strategies.
  - 2) What is WWW? Differentiate between intranet and internet.
  - 3) Explain about the traditional file management system.
  - 4) What are the advantages of networks?
  - 5) Describe the evolution of internet.
  - 6) Write about the services provided by the internet.
  - 7) What is e-mail?
  - 8) What is teamware?
  - 9) What is URL?
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**PAPER- II : COMPUTER NETWORKS**

**Maximum : 30 MARKS**

**Answer ALL 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) What is Data Communication ? Explain its components.
  - 5) Discuss about LAN, WAN and MAN.
  - 6) What is transmission media? Explain its types.
  - 7) Discuss about network technologies in detail.
  - 8) What is topology?
  - 9) Define protocol.
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**PAPER- II : COMPUTER NETWORKS**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 1) Explain different routing algorithms in detail.
  - 2) What is cryptography? Explain types of cryptography with neat illustration.
  - 3) Write a short notes on naming & addressing.
  - 4) What are the services of routing? Explain.
  - 5) Write a short notes on Binary Arithmetic.
  - 6) Discuss about IP Address calculation.
  - 7) What is Datagram?
  - 8) What is internet?
  - 9) Define routing.
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**PAPER- III : COMPUTER ORGANISATION**

**Maximum : 30 MARKS**

**Answer ALL 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) Discuss about the structure of Computer with neat diagram.
  - 5) Write about the structure of a bus with neat diagram.
  - 6) What is combinational circuit? Explain its types.
  - 7) What is Decoder? Explain.
  - 8) What is Interrupt?
  - 9) Define program Counter.
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**PAPER- III : COMPUTER ORGANISATION**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 1) Explain different addressing modes with neat diagram in detail.
  - 2) Explain Booth multiplication algorithm in detail.
  - 3) Discuss about shift registers with neat diagram.
  - 4) Write about 1's complement & 2's complement.
  - 5) Write a short notes on addition & subtraction with signed magnitude.
  - 6) Discuss about cache memory.
  - 7) What is a bus?
  - 8) What is register?
  - 9) What is flip-flop?
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**INFORMATION TECHNOLOGY**

**PAPER- IV : DATA STRUCTURES WITH C**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 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 concept of a data structure and its implementation.
  - 5) Write a C-program to add two matrices using arrays of pointers.
  - 6) What is a double linked list? Write an algorithm to insert a node into a double linked list at any position.
  - 7) 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.
  - 8) Describe the phases in the performance evaluation of programs.
  - 9) What is a sparse matrix? How is it stored?
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INFORMATION TECHNOLOGY

PAPER- IV : DATA STRUCTURES WITH C

Maximum : 30 MARKS

Answer ALL questions.

- 1) Explain the traversals operations on a binary tree and write the algorithms. Write a C program for deletion from a threaded binary tree.
- 2) Explain sorting on several keys with a suitable example. Write a C-program for 2-way merge sort.
- 3) Write an algorithm to insert a node into a linked representation of a binary tree.

- 4) Consider the following processes with their priorities:

Process: P<sub>1</sub> P<sub>2</sub> P<sub>3</sub> P<sub>4</sub> P<sub>5</sub> P<sub>6</sub> P<sub>7</sub> P<sub>8</sub> P<sub>9</sub> P<sub>10</sub>

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.

- 5) 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
- 6) Sort the following input file using the recursive formulation of 2-way merge sort:  
26, 5, 77, 1, 61, 11, 59, 15, 49, 19
- 7) Write an algorithm to concatenate two one-dimensional arrays using linked list.
- 8) Define a tree. Give its applications.
- 9) What is binary search?



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**INFORMATION TECHNOLOGY**

**PAPER- V : OPERATING SYSTEMS**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 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) Explain about different types of operating systems.
  - 5) Describe the process scheduling criteria.
  - 6) Discuss the execution of Text And Set instruction.
  - 7) Explain the deadlock detection mechanism.
  - 8) What are the functions of an operating system?
  - 9) What is multiprogramming?
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**INFORMATION TECHNOLOGY**

**PAPER- V : OPERATING SYSTEMS**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 1) Discuss about text based devices and storage disks.
  - 2) What is threat? Explain about various program threats.
  - 3) Discuss about memory management schemes.
  - 4) Write about the file system functions.
  - 5) Describe how RAID is used to increase disk reliability.
  - 6) Explain about authentication using passwords.
  - 7) What is the use of buffering?
  - 8) What is priority scheduling?
  - 9) Define deadlock.
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**INFORMATION TECHNOLOGY**

**PAPER- VI : DBMS**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 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) Explain how will you establish economic justification of a database system?
  - 5) Describe one-to-many and many-to-many recursive associations.
  - 6) Write an algorithm to create a binary tree structure and apply it on: 105, 108, 103, 107, 109, 110, 101, 104, 106, 102.
  - 7) Explain hierarchical data model with an example.
  - 8) What is a system?
  - 9) What is a ring data structure?
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**PAPER- VI : DBMS**

**Maximum : 30 MARKS**

**Answer ALL questions.**

- 1) Describe the commands of PC-FOCUS data manipulation.
  - 2) Explain the following interactive SQL commands with an example.
    - a) UNION
    - b) INTERSECT
    - c) DROP VIEW
  - 3) Explain BCNF with an illustrative example.
  - 4) List different DML control commands of IDMS and explain them in brief.
  - 5) Discuss the conditions of free and bound variables in tuple calculus.
  - 6) List and explain different locking protocols.
  - 7) What is internal model?
  - 8) What is the use of GET HOLD NEXT command?
  - 9) What is transaction log?
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