



SM – 436

II Semester B.A./B.Sc. Examination, May/June 2018
(2011-12 and Onwards) (Semester Scheme) (Repeaters)
COMPUTER SCIENCE – II
Data Structures and Operating Systems

Time : 3 Hours

Max. Marks : 70

Instruction : Answer all the Sections.

SECTION – A

I. Answer any ten questions. Each question carries 1 mark : (10×1=10)

- 1) Define data structure.
- 2) What are the two methods of representing two dimensional array in memory ?
- 3) What is TOP of a stack ?
- 4) Differentiate between linear search and binary search.
- 5) What is circular queue ?
- 6) Mention application of stack.
- 7) What is turn around time ?
- 8) Define spooling.
- 9) What is CPU schedule ?
- 10) What is trashing ?
- 11) What is Hit-ratio ?
- 12) Mention any two file operations.



SECTION – B

II. Answer any five questions. Each question carries 3 marks : (5×3=15)

- 13) Explain the different operations on string.
- 14) Write an algorithm to insert a node at the beginning of the linked list.
- 15) List tree traversal techniques.
- 16) Define the terms
 - a) Isolated vertex
 - b) Pendent
 - c) Degree of a vertex.

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- 17) Write short note on multi-user operating system.
- 18) Explain time sharing operating system.
- 19) Explain FCFS disk scheduling.

SECTION - C

- III. Answer **any five** questions. Each question carries 7 marks : (5×7=35)
- 20) a) Explain the classification of data structure in detail.
b) What do you mean by complexity of an algorithm ? (5+2)
 - 21) Explain the operations on stacks with algorithm and diagram. 7
 - 22) What is Recursion ? Write the recursion program to find the factorial of a number. 7
 - 23) What is a queue ? Explain the types of queue with example. 7
 - 24) Explain FIFO and LRU page replacement algorithm. 7
 - 25) a) Explain the characteristics of simple batch systems. 3
b) Explain multilevel scheduling algorithm. 4
 - 26) Explain paging and segmentation memory management schemes. 7
 - 27) Write short notes on (4+3)
 - a) Virtual machines
 - b) Distributed system.

SECTION - D

- IV. Answer **any one** question. It carries 10 marks : (10×1=10)
- 28) a) Explain PCB. 5
b) Explain various memory management functions. 5
 - 29) a) Explain the goals of data structure. 3
b) Write an algorithm to
 - i) Insert an item into k^{th} position of an array.
 - ii) Delete an item from the k^{th} position of array. (4+3)