



II Semester B.A./B.Sc. Examination, May/June 2013
(Semester Scheme) (Repeaters + Freshers)
(F+R 70 : 2011-12 and onwards)
(R 60 : Prior to 2011-12)
COMPUTER SCIENCE – II
Data Structure and Operating Systems

Time : 3 Hours

Max. Marks : 70/60

- Instructions :** i) **Repeaters** have to answer Section **A, B** and **C** only which carries **60** marks.
ii) **Freshers** have to answer Section **A, B, C** and **D** which carries **70** marks.

SECTION – A

I. Answer **any ten** questions :

(10×1=10)

- 1) Define Data Structure.
- 2) Give an example for primitive Data Structure.
- 3) Define Malloc () function.
- 4) How is pointer variable declared in C ?
- 5) Define Recursion.
- 6) What is a binary tree ?
- 7) Write two functions of the operating system.
- 8) Define Scheduler.
- 9) What is locality in operating system ?
- 10) What is demand paging ?
- 11) What is hit ratio ?
- 12) Define seek time.

P.T.O.



SECTION – B

II. Answer **any five** questions : **(5×3=15)**

- 13) Write down different operations performed on strings with an example.
- 14) Mention the applications of linked lists.
- 15) Write a recursive function to find the sum of N natural numbers.
- 16) Write an algorithm to perform insert operation on queue.
- 17) What is multiprogramming ? What are its objectives ?
- 18) What is a FCFS Scheduling ? Explain.
- 19) Explain different measures to avoid thrashing.

SECTION – C

III. Answer **any five** questions : **(5×7=35)**

- 20) Write a C program to perform stack operation using pointers.
- 21) Convert the Infix Expression $((A + B) * C - (D - E)) \wedge (x + y)$ to Postfix Expression. Write an algorithm to evaluate Postfix Expression.
- 22) Write an Algorithm for Binary Search. Explain with an example.
- 23) a) Explain doubly linked list. What are its advantages ? **4**
b) Write any three applications of graph. **3**
- 24) Explain the following Scheduling algorithm **4**
 - a) Shortest - Job - First Scheduling (SJF). **4**
 - b) Round Robin (RR) Scheduling. **3**
- 25) What is PCB ? Explain its functions in details.
- 26) Write a short note on : **(4+3)**
 - a) Virtual Machines
 - b) Batch systems.
- 27) Explain segmented demand paged memory management.



SECTION – D

(2011-2012 and onwards Students Only)

IV. Answer **any one** question :

(1×10=10)

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| 28) a) Explain file system. | 3 |
| b) Explain Free Space Management. | 4 |
| c) Write a short note on file protection. | 3 |
| 29) a) Explain different operations on non-primitive data structure. | 3 |
| b) Write a C program to create a binary search tree. | 7 |
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