MCA 2nd Semester Examination, 2016

DATA STRUCTURE LAB.

PAPER – MCA-206

Full Marks : 100

Time : 3 hours

The figures in the right-hand margin indicate marks

Answer any one question (on **Lottery** basis)

1. Write a C program to check whether a string is pallindome or not using stack.   60

2. Write a C program to store a sparse matrix in (row, col, data) format. Insert two spare matrix *A* and *C*. Then add two matrixes and store the result in *B*. Check whether *B* is sparse or not.   60

3. Write a C program to store two polynomials using array, :

$$A = 3x^{10} + 2x^8 - 3x^5 + 10x + 2$$
$$B = 5x^{10} + 3x^6 + 2x^5 - 7x^2 + 9$$

Then find out $C = A + B$.

60

4. Write a C program to implement stack using linked list. Operations are push and pop. 60

5. Write a C program to reverse a linked list of 8 elements.

60

6. Write a C program to create a circular queue of 10 elements, then insert element 2, 5, 9, 11, 6, 7. Then delete 2, 5. Then insert 3, 1, 7, 9, 5, 6. 60

7. Write a program to insert an element in a doubly linked list in its dictionary position i.e. insert RAT in the following list.

ant → cat → mat → sat → vat 60

8. Write a C program to delete "Delhi" from the following linked list. 60

Kolkata → Mumbai → Delhi → Chennai → Goa

9. Write a C program to calculate the factorial of 17. 60

10. Write a C program to add two polynomial. Take data from Q. 3. 60

11. Write a C program to implement 'add' and 'delete' operation of queue using linked list. 60

12. Write a C program to find a path from *A* to *B* in the following maze : 60

A
0 1 1 1 0 1 1
0 0 1 0 0 1 1
0 1 1 1 0 1 1
0 0 0 0 0 0 0
1 1 0 0 1 1 1
1 0 0 0 0 1 0
1 1 1 1 1 0 1
B

13. Write a C program to implement insertion sort using linked list. 60

14. Write a C program to implement selection sort using linked list. 60

15. Write a C program to find out the postfix of the string- (using stack) 60

a + b * c − d / e * h

16. Write a C program to find out the infix of the postfix string, (using stack)

abc * + dc / h * — 60

17. Write a C program to implement the following operations of a stack, isempty, isfull, push, pop, peep. 10 + 5 + 15 + 15 + 15

18. Write a C program to implement bubble sort using linked list. 60

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