Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 31324

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Third Semester

Petrochemical Technology

CS 3206 – DATA STRUCTURES

(Common to CS 1201 Data Structures for Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Instrumentation and Control Engineering, Information Technology, Petrochemical Technology and Computer Science and Engineering)

(Regulation 2008)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is worst-case running time?

2. Define asymptotic lower bound.

3. What is balancing symbol?

4. Write the advantages in the array implementation of list.

5. Write the algorithmic technique in merge sort.

6. What is random sampling?

7. Define Fibonacci heap.

8. List the algorithms for finding MST.

9. Write about freeing list nodes.

10. Define Garbage collection.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain about Best-case and worst-case complexities. (8)

(ii) Write a detailed note on time complexity. (8)

Or

(b) Write a detailed note on asymptotic notation and compare its functions. (16)

12. (a) Explain the role of array and linked list implementation of a queue. (16)

Or

(b) (i) Write the steps to implement a stack of queues. Write routines for creation and insertion of elements into it. (8)

(ii) Write about routines to insert heterogeneous data into a list. (8)

13. (a) Explain the following in detail :

(i) Internal and external nodes. (8)

(ii) Open addressing and Rehashing. (8)

Or

(b) Write an algorithm to insert, delete and find minimum and maximum elements from a binary search tree, (16)

14. (a) Explain the shortest-path algorithm in detail and illustrate the pseudocode for Dijkstra's algorithm. (16)

Or

(b) (i) What is minimum spanning tree? Explain the algorithms of Kruskal's and prim's in detail. (8)

(ii) Explain the various techniques to representing a graph with sample diagram. (8)

15. (a) Write a note on the following in detail : (16)

(i) Linked list representation

(ii) General lists.

Or

(b) Explain the automatic list management and its essentials of a database in detail. (16)
