

Con. 5676-08.

(REVISED COURSE)

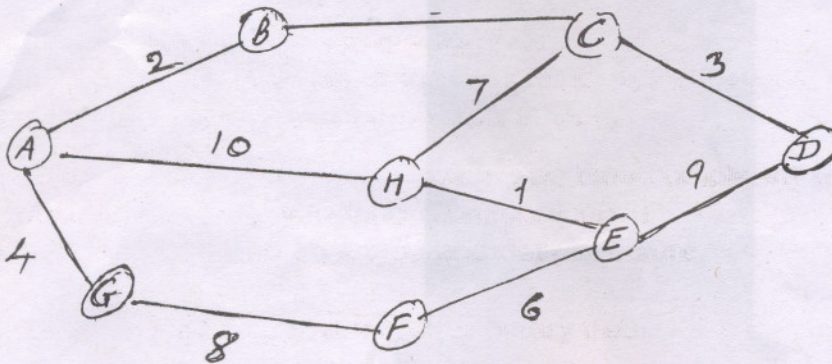
RC-8802

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Answer any **four** out of the remaining **six** questions.
 (3) **All** programs are to be **written** in **Java**.

1. (a) Define O notation. Compute space and time completely of Binary Search technique. 10
 (b) Construct suffix trie for string "communication". 6
 (c) Distinguish between data type and data structure. 4
2. (a) Specify an Abstract Data Type for binary tree. 6
 (b) Write a program to implement Radix sort. 10
 (c) Write the algorithm for linear search. 4
3. (a) Construct the binary tree for the in order and post order traversal sequences given bellow- 10
 In order : "INFORMATION"
 Post order : "INOFMAINOTR"
 (b) Write a program to implement stacks using arrays. 10
4. (a) Write a program to implement queues using Linked Lists. 10
 (b) For the following graph compute minimum spanning tree. 10



5. (a) Hash the following in a table of size 11. Use any two collision resolution techniques. 10
 23, 0, 52, 61, 78, 33, 100, 8, 90, 10, 14.
 (b) Define ADT for priority queue and explain its working. 10
6. (a) Write an algorithm for merge sort and comment on its complexity. 9
 (b) Construct a sorted heap for the following : 11
 (20, X), (14, Y), (50, C) (3, B), (5, D), (7, Q), (11, S), (8, V), (12, H) and (15,P).
7. Write short notes on any **four** the following :- 20
 - (a) Complexity of recursive functions
 - (b) Use of Arraylists
 - (c) Expression and realization of ADT's in Java
 - (d) Comparison of searching Algorithms
 - (e) Pattern matching.
 - (f) B trees.