DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, UNIVERSITY OF CALCUTTA

CLASS TEST FOR M. SC. SEMESTER-II

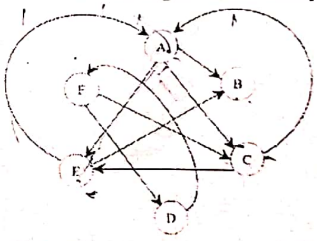
Full Marks: 30 | Subject: Advance Operating System (CSMC202) | Time: 1 hour

1. Answer any five of the following: 2x5=10

a) Define condition of consistency for a distributed system.
b) Define global state of a system.
c) Define user mobility, and access transparency.
d) Compare syntactic versus semantic distribution transparency.
e) Define forward and backward intersection of cuts.
f) Can a node with in-degree zero act as initiator node for diffusion computation process? Justify your opinion within 150 words.

2. Answer each of the following: 4x5=20

a) How clocks in nodes are synchronized for Lamport's logical clock model in a distributed system?
b) "Chandy-Lamport's state recording algorithm is not an example of diffusion computation model for algorithms" - do you agree with this comment? Justify your opinion within 150 words.
c) Is it possible to follow a Master clock in a Master node as the system's clock for an entire distributed system? Justify your opinion within 150 words.
b) What would be the impact for finding initiator nodes if the network has more than one node with in-degree zero? Justify your opinion within 150 words.
e) Identify the node set that can be reached from node A in the figure attached, in a maximum of 2 hops. Also identify the node(s) for the attached figure that can act as possible initiator node(s) for diffusion computation algorithms. Also, for each of the possible initiator nodes(s), identify the order in which the nodes will be traversed till all nodes in the network are reached.



A → C → E
A → F → B