**Graphic Era Deemed to be University**

**Department of Computer Science and Engineering**

Mid Term Assessment Assignment and Presentation

Distributed Systems (TCS 801)

Instructions common to all sections:

Roll Nos 1-10 will do Assignment No 1, 5, 10

Roll Nos 11-20 will do Assignment No 2, 4, 9

Roll Nos 21-30 will do Assignment No 3, 6, 8

Roll Nos 31-40 will do Assignment No 4, 7, 10

Roll Nos 41-50 will do Assignment No 1, 5, 9

Roll Nos 51-60 will do Assignment No 2, 7, 8

Roll Nos 61-70 will do Assignment No 3, 6, 9

Roll Nos 70+ will do Assignment No 1, 5, 10

**Assignment: (3\*15 = 15 Marks)**

1. What is distributed system? Why there is a need for distributed system. Explain by means of clocks. Also explain characterization of distributed system.
2. Explain using example Birman Schiper-Stephenson protocol.
3. Explain using example Chandy Lamport Algorithm
4. Explain using example Ricard Agrawala algorithm
5. Explain using example different algorithm used in leader election in a ring.
6. Explain different deadlock handling strategies. Also explain centralized deadlock detection.
7. Differentiate between Path pushing algorithms, Chandy’s et all edge chasing algorithm
8. Explain the use of Agreement Protocols, classification of agreement problem. Also explain Byzantine agreement problem and its application.
9. Explain any one of the Quorum-based mutual exclusion algorithm , and how Quorum-based mutual exclusion algorithms are different from other algorithm?
10. What are the requirements of the mutual exclusion algorithms , explain them ?

**Presentation topics:**  **(10 marks)**

(Note: There are 20 presentation topics. The presentation topic need to be taken in the order of class roll number. Like roll no. 1, topic of presentation 1. Roll no. 2 topic of presentation 2 and so on till roll number 20 and then roll number 21 again presentation topic 1 and so on..)

1. logical clock and global clock

2. Global clock and vector clock

3. Birman- Schiper-Stephenson protocol

4. Chandy-Lamport algorithm

5. Huang’s Algorithm

6. Lamport non -token based algorithm

7. Ricard Agarwala non-token based algorithm

8. Rouicarol-Carvalho non-token based algorithm

9. Maekawa quorum based algorithm

10. Suzuki-Kasami token based algorithm

11. LeLann& Chang-Robert’s Algorithm

12. Hirshberg- Sinclair Algorithm

13. Wait for graph

14. Deadlock handling strategies

15. Path pushing algorithms

16. Chandy’s et all edge chasing algorithm

17. Byzantine agreement problem

18. Agreement Protocols

19. Consensus problem

20. Application of agreement protocol