8. (a) Show that a Byzantine agreement can't be reached among three processors, where one processor is faulty. **8**

(b) Describe the role of atomic commit in distributed databases. **7**

AA-584

M. Tech. EXAMINATION, Dec. 2017

(First Semester)

(B. Scheme) (Main & Re-appear)

(CSE)

CSE-507-B

ADVANCED OPERATING SYSTEMS

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. List and describe any *five* classes of advanced operating system driven by applications. **15**

2. (a) Define a monitor. Explain its structure. Write its applications. **2,3,3**

(b) Define a guarded command. How they are used in CSP. **7**

Unit II

3. If site S has to broadcast message M to set of sites, Will the Schiper-Eggli-Sandoz causal ordering protocol work properly without modification ? If your answer is yes, justify your answer. If your answer is no, give the necessary modifications to the causal ordering algorithm. **15**

4. Describe the following algorithms for achieving mutual exclusion in distributed systems : **15**

(i) Ricart-Agarawal algorithm

(ii) Singhal's Hueristic algorithm.

Unit III

5. (a) Differentiate between a communication deadlock and a resource-deadlock. **5**

(b) Describe the Chandy-Mishra-Haas's distributed deadlock detection algorithm. What is effect of loss of message on the algorithm. **10**

6. List the characteristics of hierarchical deadlock detection algorithms. Write and explain the Menasce-Muntz algorithm with suitable example. **15**

Unit IV

7. Describe how rolling back of processes in concurrent systems is more difficult as compared to single user systems as an recovery approach. With suitable examples show that rolling back in concurrent systems can cause further problems in system. **15**