Roll No. [Total No. of Pages : 2]

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M.Tech. III semester (Main/Back) Examination, Dec. - 2016
Computer Engg.
3MCS1 Parallel and Distributed Computing

Time : 3 Hours

Maximum Marks : 100
Min. Passing Marks : 33

Instructions to Candidates:

Attempt any five questions. Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitably if any and specify the same.

1. a) Discuss critical path in case of Reference broadcast synchronization algorithm. **(8)**

   b) Is vector clock better than lamport's logical clock? Justify your answer. **(12)**

2. a) Electronic health care systems are also important Derivative systems. Explain the statement with a suitable example. **(9)**

   b) Is there any difference between grid computing and cluster computing? Explain.

 (11)

3. a) Explain the principle of TCP handoff in accessing a server cluster. **(10)**

   b) Why route optimization is important in a distributed server? Explain. **(10)**

4. a) What is the role of a message broker in message queuing system? Explain. **(10)**

   b) Is structured naming better than flat naming concept? Explain. **(10)**

5. a) There are 2 replicas at different locations there are 3 operations (<5,B> x: = x+3), (<9,A> y: = y+2), (<13,A> y:=y+3) (<15,A>x:=y*2) at replica A. There are 2 operations (<5.B>x= x+3) and (<11,B> y: = y+4) at replica B. Calculate the values of conits at the 2 places. Also compute vector clock, order deviation & numeric deviation at both replicas. **(15)**

   b) Explain eventual consistency with a suitable example. **(5)**

6. a) Is there any difference between write follow Reads and Read - your - writes consistency models? Explain with suitable examples. **(12)**

   b) Replicated write protocols are quite popular now a days. Explain ROWA in this regard. **(8)**

7. a) Differentiates among at - least one, at - most one & exactly - once semantics in the situation of server - crash. **(12)**

   b) How files are shared in Coda? Explain with a suitable example. **(8)**

8. Write short notes on any **three** :

   a) Use of parallel programming in distributed systems.

   b) Distributed document - based system.

   c) Distributed coordination - based system

   d) Distributed object - based system. **(20)**