Total No. of Questions : 10]

SEAT No. :

P2347

[Total No. of Pages : 3

[5254]-680-C

B.E. (Computer Engineering) (Semester - II)

CONCURRENCY ON OPEN SOURCE SYSTEMS (Elective - IV)

(2012 Pattern) (Open Elective)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What are four necessary conditions that must hold simultaneously for a deadlock? Explain in detail. **[5]**

b) What are Common Features in Shared-Memory Programming and Distributed- Memory Programming? Explain each in detail. **[5]**

OR

Q2) a) How should you partitioning the global data structure into chunks? Explain in detail. **[5]**

b) Explain the necessity of taking global snapshot periodically in distributed system. **[5]**

Q3) a) With the help of suitable example explain how multiple entry points, allowing users to navigate within an android application? **[5]**

b) What is data shipping? What are advantages of distributed object over RPC? **[5]**

OR

Q4) a) Explain in detail the libraries used in android architecture? **[5]**

b) How semaphore is useful for solving the deadlock ? Write the pseudo code for solution to dining philosophers problem using semaphore. **[5]**

P.T.O.

Q5) a) Explain in detail centralized symmetric shared memory architecture.**[10]**

b) What are the drawback of maintaining directory at central server for locating remote data. How it can be overcome in distributed directory?**[8]**

OR

Q6) a) Write a note on communication of processes in concurrent system. **[6]**

b) Explain how client server systems are implemented using distributed Object. **[6]**

c) Explain request reply mechanism in client server systems. **[6]**

Q7) a) What are the different model of computation for concurrent processing? Explain any one in detail? **[8]**

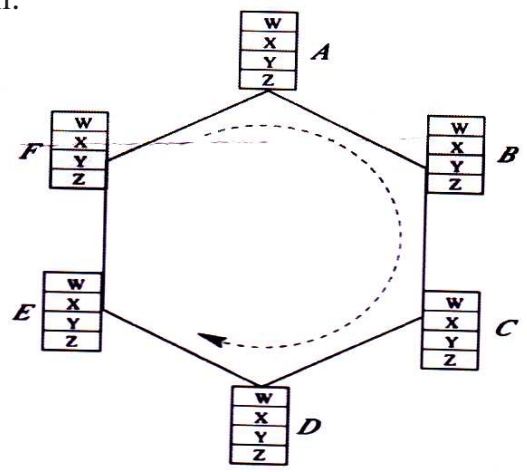
b) Explain in details the steps involved in graph theoretical algorithm. **[8]**

OR

Q8) a) Explain in detail the difference between True Concurrency vs. Pseudo-Concurrency. **[8]**

b) Draw and explain the terms (a) Holding a resource (b) Requesting a resource (c) Deadlock for Resource allocation graphs. **[8]**

Q9) a) Consider ring database (shown in below figure) in distributed system. How will you avoid deadlock while simultaneously updating register. Explain in detail. **[10]**



b) Write the deadlock Rule 2 and prove it for node ordering. **[6]**

OR

Q10)a) Describe the following semantics with respect to CSP 1) Operational Semantics 2) Denotational Semantics 3) Algebraic Semantics. **[6]**

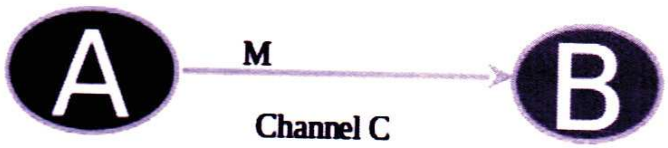
b) 

Figure (model for secrecy with scoping)shows that A sends M to B over secure channel c. Write the Pi Calculus syntax for above mentioned model. Which pi notation will be used to show channel c is invisible to process other then processes A or B. **[5]**

c) Capture the intended specification in terms of failures in modeling bully algorithm for election. Explain in detail using CSP. **[5]**

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