



## End Semester Examination – Nov/Dec – 2016

Code : **14CS3006**  
Sub. Name : **Advanced Operating Systems**

Semester : **2016-17 ODD**  
Duration : **3hrs**  
Max. marks : **100**

### ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.		Explain the architecture of distributed database system with necessary diagrams	CO1	20
(OR)				
2.	a.	Consider two concurrent transactions T1 and T2, which write the same data object X and perform concurrency control using two-phase locking. Show that if T1 wrote X before T2 wrote it, then the lock-point of T1 must precede the lock-point of T2.	CO1	10
	b.	Explain about two-phase locking protocol with an example.	CO1	10
3.	a.	What is critical section? Explain early mechanisms for handling mutual exclusion. Discuss the disadvantages of early mechanisms and demonstrate the suitable solution for critical section problem.	CO1	10
	b.	Demonstrate how Lamport's logical clock and vector logical clock helps to order events in a distributed system.	CO1	10
(OR)				
4.	a.	Explain round robin scheduling algorithm with an example.	CO1	15
	b.	Differentiate preemptive and non-preemptive scheduling algorithms	CO1	5
5.		Explain about the two protocols used to maintain coherence in Distributed Shared Memory (DSM). Which protocol is used in the PLUS system to maintain cache coherence and show how it ensures the general consistency in read and write operation?	CO2	20
(OR)				
6.		Differentiate centralized deadlock detection algorithms and distributed deadlock detection algorithms. Explain any one of centralized deadlock detection algorithm.	CO2	20
7.	a.	Discuss transfer policy, selection policy, location policy and information policy in receiver initiated algorithm with a necessary diagram.	CO2	10
	b.	Demonstrate sender initiated component and receiver initiated component in Above-Average algorithm.	CO2	10
(OR)				
8.		Apply capability-based addressing to implement an access matrix (P) of system X. List the limitations of capability-based addressing mechanism. Identify and demonstrate other suitable addressing mechanism on system X to overcome this limitation.	CO2	20
<b><u>Compulsory:</u></b>				
9.	a.	Describe bankers algorithm for deadlock avoidance with example.	CO2	10
	b.	What is a multi processor system? Classify multiprocessor systems based on memory location and accessibility of the main memory to the processors.	CO2	10