Printed Pages – 7

322456 (22)

BE (4th Semester)

Examination, April-May, 2014

Branch : CSE

OPERATING SYSTEM (NEW)

Time Allowed : Three Hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory.

Attempt any two parts from (b), (c) & (d).

Q. 1. (a) What do you mean by time sharing operating system ? Give an example.   **2**

(b) Explain distributed computing.   **7**

(c) Describe the evolution of operating system.

Mention any two operating system available today.   **7**

(d) Explain the following in brief :

(i) Real time OS   **2**

(ii) Input-output trends.   **3**

(iii) Batch processing.   **2**

Q. 2. (a) Mention any four process states.   **2**

(b) What is semaphore ? Explain bounded-buffer problem.   **7**

(c) What is concurrency control ? Explain with classical problems.   **7**

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(d) Consider the following four processes with the length of CPU burst time in milliseconds : 7

Process	Arrival time	Burst time
P_1	0	8
P_2	1	4
P_3	2	9
P_4	3	5

Draw Gantt's chart and find out which of the following algorithms give the least average waiting time :

(i) FCFS

(ii) SRTF

Q. 3. (a) Differentiate between deadlock and starvation 2

(b) What are deadlock prevention methods? Explain 7

(c) Consider a system with five processes P_0 through P_4 and three resource types A, B, C. The following snapshot of the system has been taken : 7

	Allocation			Max			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2			
P_2	3	0	2	9	0	2			
P_3	2	1	1	2	2	2			
P_4	0	0	2	4	3	3			

(i) Find the need matrix.

(ii) Is the system safe ? Explain.

(d) How do detect deadlock ? Explain deadlock recovery procedure. 7

4. (a) What do you mean by Belady's anomaly ? 2

(b) Consider the following page reference string :

7 0 1 2 0 3 0 4 2 3 0 3 2 1

Find the number of page faults using page frame three in : 7

(i) Optimal

(ii) LRU

(c) What is demand paging ? Explain address translation in paging. 7

(d) Explain cache memory organization. 7

Q. 5. (a) What is buffering ? 2

(b) Explain file access methods. 7

(c) Suppose the head of a moving hard disk with 200 tracks is numbered from 0 – 199, is currently serving a request for track 100. What is the head movement to satisfy the requests for the following scheduling algorithms : 7

23, 89, 132, 42, 187

(i) FCFS

(ii) SSTF

(7)

(d) Write short notes on :   7

    (i)   File sharing

    (ii) I/O buffering