Nagar Yuwak Shikshan Sanstha's

Yeshwantrao Chavan College of Engineering

(An Autonomous Institution Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

Hingna Road, Wanadongri, Nagpur.

ODD Term--2022-23 Mid Semester Exam - II

Course and Semester – B.Tech. -III Sem Date: 20/01/2023

Subject Code : AIDS2207 Subject : OPERATING SYSTEMS

Time :1½ Hours Max. Marks: 30

Instructions to examinees:

1) Attempt all questions.
2) Figures in bracket to the right indicate the marks for questions.
3) Write equations wherever necessary.
4) Assume suitable data wherever necessary.

<table>
<tr><th>Qu.</th><th>Solve the following</th><th>Max Marks</th><th>CO</th><th>Level</th></tr>
<tr><td rowspan="2">Q-1</td><td>A) i. Calculate the size of memory if its address consists of 22 bits and the memory is 2 -byte addressable.
ii. What is the role of TLB in memory management in Operating System?</td><td>(02+ 02)</td><td>CO4</td><td>L3</td></tr>
<tr><td>B) Consider the following segment table-
<table>
<tr><th>Segment No.</th><th>Base</th><th>Length</th></tr>
<tr><td>0</td><td>1230</td><td>600</td></tr>
<tr><td>1</td><td>2310</td><td>15</td></tr>
<tr><td>2</td><td>90</td><td>100</td></tr>
<tr><td>3</td><td>1330</td><td>590</td></tr>
<tr><td>4</td><td>1952</td><td>96</td></tr>
</table>
Which of the following logical address will produce trap addressing error?
i. 0, 450 ii. 1, 11 iii. 2, 100
iv. 3, 425 iv. 4, 105 vi. 0,600
Calculate the physical address if no trap is produced in every case.</td><td>06</td><td>CO4</td><td>L3</td></tr>
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Qu.	Solve the following	Max Marks	CO	Level
Q-2	A) Consider the page reference string: 1 2 3 4 5 3 4 1 6 7 8 7 8 9 7 8 9 5 4 5 9 2 Assume page frame size = 4, Calculate the number of page faults for each of the following algorithms. Also state which algorithm has minimum page faults: i) FIFO ii) LRU iii) Optimal	07	CO4	L3
	B) What is the significance of Valid-Invalid bit in demand paging? Discuss with the help of suitable diagram.	03	CO4	L2
Q-3	A) Suppose that a disk drive has 2000 cylinders. The drive is currently serving a request at cylinder 190 and the previous request was at cylinder 145. The queue of pending request, in FIFO order is: 86, 1890, 913, 1679, 945, 1500, 1020, 1745, 180. Starting from the current head position, what is the total distance (in cylinder) that disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms? i) FCFS ii) SSTF iii) LOOK iv) C-LOOK v) SCAN vi) C-SCAN	06	CO5	L5
	B) Compare Contiguous and Indexed file allocation methods.	04	CO5	L3