

**B.Tech. – VIEP – COMPUTER SCIENCE AND  
ENGINEERING (BTCSVI)**

00846

**Term-End Examination**

**June, 2016**

**BICS-019 : OPERATING SYSTEMS**

*Time : 3 hours*

*Maximum Marks : 70*

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*Note : Question no. 1 is compulsory. Attempt any six questions from the rest. All questions are of equal marks.*

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1. Consider the following page references :

3 2 1 1 3 3 4 5 6 1 2 3 1

How many page faults would occur for the following algorithms assuming three frames ? 10

(a) FIFO

(b) LRU

2. What is an access matrix ? How do you implement an access matrix through a capability list ? Explain through an example. 10

3. What is a semaphore ? Write a solution to Readers and Writers problem using a semaphore. Also comment on the deadlock related issue of the proposed solution. 10
4. (a) What is a safe state and what is its use in deadlock avoidance ? 4
- (b) Define the following terms with an example for each : 6
- (i) Turnaround time
- (ii) Waiting time
- (iii) Response time
5. (a) Explain the difference between external and internal fragmentation. Which one occurs in paging and which one occurs in segmentation ? Explain. 5
- (b) How do you define kernel in OS ? Discuss the advantages of microkernel approach to OS design. 5
6. What is the significance of virtual memory technique ? How is it implemented through demand paging scheme ? Explain through an illustration. 10

7. How do you implement a directory system through a linear list and a hash table ? Also discuss the merits and demerits of these implementations. 10

8. Answer the following questions :

(a) Is multithreading same as multiprocessing ? Clarify. What are the advantages of multithreading ? 4

(b) Define the tasks performed by process management and file management. 6

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