

Roll No.

97669

**BCA 3rd Semester (New)
Examination – November, 2018**

INTRODUCTION TO OPERATING SYSTEM

Paper : BCA-201

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *four* more questions, selecting *one* question from each unit. Question No. 1 is *compulsory*.

1. (a) What is the advantage of Multiprogramming ?
- (b) Explain the different operations on processes.
- (c) What are the various scheduling criteria for CPU scheduling ?
- (d) Define deadlock prevention.
- (e) What are the main functions of the memory-management unit ?
- (f) Why should we use virtual memory ?
- (g) What are the different accessing methods of a file ?
- (h) Summarize the characteristics that determine the disk access speed ? 8 × 2 = 16

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UNIT - I

- 2. (a) What are the system components of an operating system & explain them? 8
- (b) Why operating system is called an Extended Machine and Resource Manager? 8
- 3. (a) Differentiate a thread from a process. 8
- (b) Describe the action taken by a kernel to context-switch between processes. 8

UNIT - II

- 4. Consider the following set of processes with the length of the CPU burst time given in milliseconds :

Process	Burst Time	Priority	Arrival Time
P ₁	6	4	0
P ₂	4	3	1
P ₃	2	1	2
P ₄	5	2	3
P ₅	3	5	4

Draw Gantt chart; calculate Avg. Turnaround time and Avg. Waiting time for FCFS, SJF (pre-emptive & non-pre-emptive), Priority Scheduling (pre-emptive and non-pre-emptive) and RR (Quantum=2) scheduling algorithms. 16

- 5. (a) Define Deadlock. Explain different methods for deadlock prevention with example. 8
- (b) Explain Deadlock Detection & Recovery and Deadlock Avoidance. 8

UNIT - III

- 6. (a) Differentiate External fragmentation with Internal fragmentation. 8
- (b) Explain how logical address is translated into physical address with the neat diagram. 8
- 7. (a) Explain FIFO and LRU page replacement algorithms with the help of examples. 8
- (b) What is thrashing and explain the methods to avoid thrashing. 8

UNIT - IV

- 8. Discuss the following :
 - (a) Contiguous Allocation 6
 - (b) Indexed Allocation 5
 - (c) Linked Allocation 5
 - 9. Suppose that a disk drive has 1000 cylinder, numbered 0 to 999. The drive is currently serving a request at cylinder 43, and the previous request was at cylinder 125. The Queue of pending requests in FIFO order is : 76, 479, 919, 734, 948, 519, 32, 730, 135
- Calculate the total distance (in cylinder) that the disk arm moves to satisfy all the pending requests for each of the disk-scheduling algorithms i.e. FCFS, SSTF, SCAN, LOOK, C-SCAN, C-LOOK. 16