



41323/C 230

Reg. No.

--	--	--	--	--	--	--	--

III Semester B.C.A.4 Examination, Nov./Dec. 2018

(Regular)

OPERATING SYSTEMS PRINCIPLES

Time : 3 Hours

Max. Marks : 80

Instructions : Draw the diagrams wherever necessary.

Simple calculators are permitted.

SECTION – A

(10×2=20)

I. 1) Answer **all ten** questions :

- a) List four functions of operating system.
- b) Distinguish between long term and short term schedules.
- c) What do you mean by response time.
- d) Define fragmentation.
- e) Distinguish between logical and physical address space.
- f) What is paging.
- g) Give the benefits of co-operating process.
- h) List all various disk scheduling algorithm.
- i) List different types of files.
- j) What are the disadvantages of contiguous memory allocation ?

SECTION – B

(5×4=20)

II. Answer **any four** questions :

- 2) Explain distributed systems.
- 3) What is Process Control Block (PCB). Explain its components.
- 4) Explain mutual exclusion using synchronization hardware.
- 5) Explain various file operations.
- 6) Explain dining philosophers problem of synchronization.

SECTION – C

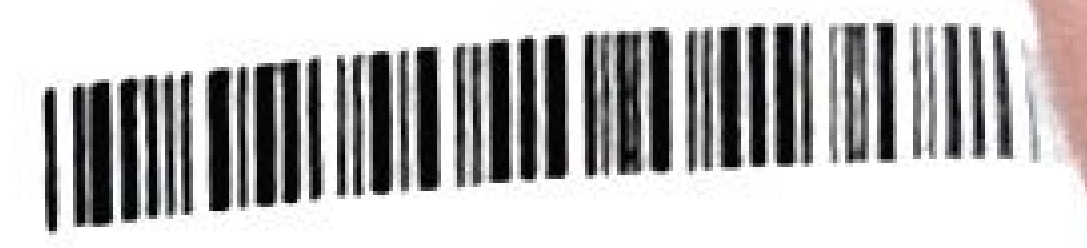
(10×4=40)

III. Answer **any four** full questions :

- 7) a) Explain real time systems and batch systems.
- b) Define deadlock. How do we prevent it ?

(5+5)

P.T.O.



41323/C 230

- 8) a) Define multiprogramming concept.
 b) Consider set of process with CPU burst, arrival and priority. (Lower number indicate higher priority).

Process	Burst time (ms)	Priority	Arrival time (ms)
P ₁	8	4	0
P ₂	9	1	0
P ₃	4	2	1
P ₄	3	3	2

- i) Draw the Gantt chart, illustrating the execution of processes using SJF (preemptive) and priority (non-preemptive). (2+8=10)
- ii) Calculate the average waiting time in each case.
9. a) Explain LRU Page replacement algorithm.
 b) A hard disk have 100 cylinders numbered from 0 to 99. The drive is currently at cylinder 43. The status of the queue is 68, 90, 47, 15, 67, 58, 56, 50, 10, 75, 99. Calculate the total number of head movements using following disk, scheduling algorithm :
- i) FCFS (4+6=10)
 ii) SSTF.
10. a) Explain free space management in detail. (6+4) (6+)
 b) Explain swapping technique with neat diagram.
11. a) Explain the terms first fit, best fit and worst fit with example.
 b) Write a short note on file access (sequential and direct access). (6+4=10)