

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

III Semester B.C.A. 4 Degree Examination, Nov./Dec. - 2019
OPERATING SYSTEM PRINCIPLES

(Regular)

PAPER : BCA 4

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Draw the diagrams wherever necessary.
2. Simple calculators are permitted.

SECTION - A

Answer all Ten questions:

(10×2=20)

- a) What is Virtual Machine?
- b) List the goals of operating system.
- c) Define process. List the states of a process.
- d) What is Context Switch?
- e) Define Deadlock.
- f) What is Race condition?
- g) Define Fragmentation.
- h) What is memory management unit?
- i) List the different file types.
- j) What is rotational latency?

SECTION - B

(4×5=20)

II. Answer any 4 questions:

2. Discuss multiprocessor system concept.
3. With neat diagram explain Process Control Block (PCB)
4. Explain characteristics of Deadlock.
5. Explain the following algorithms:
 - i) First Fit
 - ii) Best fit
 - iii) Worst Fit
6. Discuss Different File attributes.

SECTION-C

(4×10=40)

III. Answer any 4 of the following:

7. Consider the following set of process with CPU Burst time given in milliseconds.

Process	Burst time
P ₁	7
P ₂	3
P ₃	5
P ₄	1
P ₅	4

Process are arrived in P₁, P₂, P₃, P₄, P₅ order of all at time 0.

- 1) Draw a Gantt chart to show execution using FCFS and Round Robin (quantum=1 ms) Scheduling.
- 2) Calculate average waiting time for FCFS and Round Robin Scheduling.
- 3) Calculate average turn around time for FCFS and Round Robin Scheduling. (2+4+4)

8) Explain FIFO, OPR page replacement algorithms.

[1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6]

b) Explain how to implement free space management using Bit Vector method. (7+3)

9) Explain Dining philosopher problem.

10) Explain paging with neat diagram.

11) Explain Services of operating System.

b) With a neat diagram explain contiguous allocation method. (3+3)

12) Discuss the Benefits of threads.

b) What are the operations on file. (5+5)