41323/C230

Reg. No. | | | | | | | | |

III Semester B.C.A.4 Degree Examination, March - 2022
OPERATING SYSTEM PRINCIPLES
(Repeaters)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

1) All Sections are Compulsory

2) Give examples wherever-necessary

SECTION - A

Answer the following questions. **(10×2=20)**

1. a) Define operating System List its goals.

b) State the benefits of virtual Machine

c) Define CPU Scheduling.

d) What is Context Switching?

e) State the benefits of Thread

f) Define Race Condition

g) Define Buffering

h) Define Fragmentation

i) What is Demand Paging?

j) Define File. List File attributes.

SECTION - B

Answer any **Four** of the following questions. **(4×5=20)**

2. Explain Batch Operating System with advantages and disadvantages.

3. Define process. Explain Process States.

4. Explain Necessary characteristics of Deadlocks.

5. Explain paging Hardware Technique.

6. Discuss Contiguous Allocation of a disk.

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SECTION - C

Answer any **Four** of the following questions. **(4×10=40)**

7. a) Explain Operating System Services.

b) Explain Monolithic and Microkernel Operating System.

8. Consider the following Process, with the CPU Burst time given in milliseconds.

Process	Burst time
P_1	8
P_2	4
P_3	9
P_4	5
P_5	1

i) Draw Gantt charts to show execution using FCFS and SJF Scheduling.

ii) Calculate average waiting time for each scheduling algorithms.

iii) Calculate average turn around time for each scheduling algorithms.

9. a) Explain Critical Section

b) Explain Deadlock Prevention.

10. a) Explain TLB.

b) Consider the following reference string

1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5

Calculate how many page faults would occur for the FIFO and Optimal Page Replacement algorithms. Assuming 4 frames (Initially all the frames are empty).

11. The requested tracks in the order received are:

55, 58, 39, 18, 90, 160, 150, 38, 184

Apply the following Disk Scheduling algorithms starting track at 100.

a) FCFS b) SSTF

c) SCAN d) C-SCAN
