

32521/E210

Reg. No.

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V Semester B.C.A. 3 Degree Examination, November - 2020

OPERATING SYSTEM

(Regular)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer the questions of Section A,B,C as per the instructions.
2. Draw diagrams Wherever necessary.

SECTION - A

(10×2=20)

1. Answer any **Ten** of the following
 - a) Differentiate between independent & Co-Operating Process.
 - b) Mention the types of Interprocess Communication.
 - c) Define a System Call.
 - d) What are the advantages of Multi processor Systems.
 - e) What is through put ?
 - f) What is deadlock ?
 - g) What is the use of an overlay ?
 - h) What is demand paging ?
 - i) Differentiate between a Counting and Binary Semaphore.
 - j) What is Pagefault ?
 - k) Mention various file attributes.
 - l) Name any three user authentication methods.

[P.T.O.]

SECTION - B

Answer any **Four** questions .

2. Explain the concept of multiprogramming with time sharing technique.
3. Explain the types of system-calls.
4. What is critical section problem? Explain
5. Explain Swapping process with neat diagram.
6. Explain various file operations.
7. Explain access matrix method of system protection.

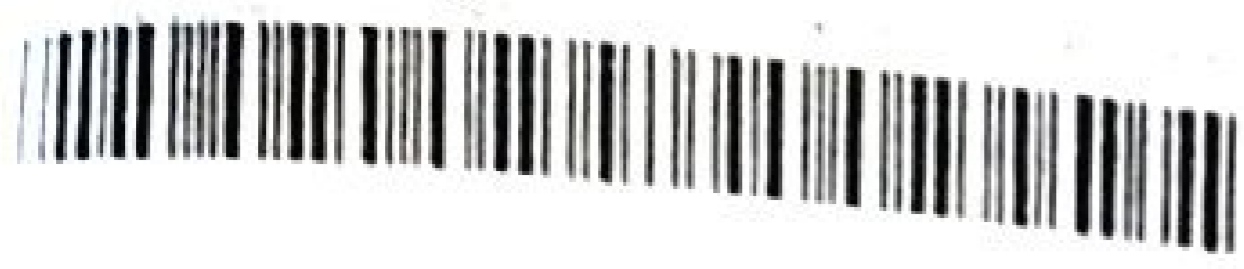
SECTION - C

Answer any **Four** of the following

8. Consider the following set of processes with CPU burst time and arrival time in milliseconds.

<u>Process</u>	<u>Arrival time</u>	<u>Burst Time</u>
P ₁	0	8 ms
P ₂	1	4 ms
P ₃	2	9 ms
P ₄	3	5 ms

- i) Draw the GANTT-CHARTS illustrating the execution of these processes under Round Robin Scheduling. (Quantum Time = 01ms)
 - ii) Calculate average waiting time for FCFS & R R Scheduling.
 - iii) Calculate average turn around time for FCFS & R R Scheduling.
9. a) Explain Dining Philosopher's Problem of Synchronization.
 - b) Explain paging with an example.



10. Consider a system with 5 processes P_0 through P_4 and three resource types A, B, C. Resource type A has 10 instances, resource type B has 5 instances and resource type C has 7 instances. The following snap shot of the system has been taken.

	Allocation			Max		
	A	B	C	A	B	C
P_0	0	1	0	7	5	3
P_1	2	0	0	3	2	2
P_2	3	0	2	9	0	2
P_3	2	1	1	2	2	2
P_4	0	0	2	4	3	3

Using Bankers Algorithm answer the following.

- i) What is the content of available matrix ?
 - ii) What is the content of need matrix?
 - iii) Find the safe sequence, if the system is in a safe state. (2+2+6)
11. a) Explain contiguous allocation method of allocating disk's space to file.
- b) Write a note on IPC (5+5)
12. a) Explain optimal Page Replacement and least recently used page replacement algorithm considering the following reference string. [7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1].
- b) Explain SSTF & SCAN Disk Scheduling algorithm with an example. (5+5)

11) Write a note on IPC