First Semester B.C.A. Degree Examination, October/November 2019

(CBCS Scheme)

Computer Science

OPERATING SYSTEM

Time : 3 Hours]   [Max. Marks : 90

Instructions to Candidates : Answers ALL Sections.

SECTION – A

Answer any **TEN** questions :   (10 × 1 = 10)

1.   What is spooling?

2.   Name the types of semaphore.

3.   What is system call?

4.   What is logical address?

5.   What do you mean by Garbage collection?

6.   What is threshing?

7.   Define Cache memory.

8.   What is the degree of multi programming?

9.   Define FILE.

10. Define rotational latency.

11. Expand WORM.

12. Define access matrix.

SECTION – B

Answer any **FIVE** questions :   (5 × 3 = 15)

13. Explain the different process state with a help of neat diagram.

14. Differentiate between multi tasking and multi programming.

15. Mention any three differences between mutex and semaphore.

16. Write three disadvantages of using linked file allocation method.

17. Differentiate between internal and external fragmentation.

18. Explain process synchronization.

19. Explain any one security problem in protection and security of a file.

SECTION – C

Answer any **SIX** questions :   **(6 × 5 = 30)**

20. Write a note on real time operating system.

21. Explain the different types of schedulers.

22. Explain PCB with a help of neat diagram.

23. Explain dinning philosopher solution using semaphore.

24. Explain the task performed by the FILE management in any operating system.

25. Explain the various types of VIRUS.

26. Explain the necessary conditions for a dead lock to occur.

27. Write a note on monitors and critical regions.

SECTION – D

Answer any **FIVE** questions :   **(5 × 7 = 35)**

28. Explain the various services provided by an operating system.

29. Find the closing time, average turn around time and average waiting time for the following processes using Round Robin method of time quantum = 2.

Process No.	Arrival Time	Burst Time
P_0	0	4
P_1	1	5
P_2	2	2
P_3	3	1
P_4	4	6
P_5	6	3

30. (a) Explain Banker's algorithm.

(b) Mention three conditions for the solution to critical section problem.

(4 + 3)

31. Explain paging with the help of neat diagram.

32. For the following snap shot find the total resources available, need matrix, write the sequence and is it a safe state.

Allocation			Process No.	Max			Available		
A	B	C	Processes	A	B	C	A	B	C
0	1	0	P_0	7	5	3	3	3	2
2	0	0	P_1	3	2	2			
3	0	2	P_2	9	0	2			
2	1	1	P_3	2	2	2			
0	0	2	P_4	4	3	3			

33. 98, 183, 37, 122, 14, 124, 63, 67

Assuming the head is initially at cylinder 56. Draw and explain using the following disk scanning method.

(a) FCFS

(b) SSTF

(c) SCAN

34. For the following string find the ratio of page hit and page fault or page miss using LRU and FCFS method of the page size = 03.
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 1, 2, 0.

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