B.Sc. (Honours-Fifth Semester) Computer Science (New) Examination 2021-22
Sub-Operating Systems
(SSCICR0511)

Time Allowed: Two hours

Maximum Marks: 70

Note: *Attempt any 14 questions each carry 5 marks. Write a brief, neat and to the point answers*

1. Explain briefly Time sharing Operating System.

2. What is process? What are the different states of process?

3. What is Critical section in process synchronization? What are the three condition that solution of a critical section problem must satisfy?

4. What is main purpose of operating system?

5. What are differences between Primary memory and Secondary Memory?

6. Consider the below given set of Process and Burst Time in milliseconds .Calculate Average Waiting Time using Round Robin CPU scheduling algorithm it is given quantum time of 4 milliseconds.

Process	Burst Time
P1	26
P2	7
P3	4

7. Write any two differences among Long Term, Short Term, and Medium Term Scheduler.

8. Consider a system with Three process which requires four resource type A,B, C, D as given below find the safe sequence if possible.

Process	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				

9. Explain Translation Look aside buffer (TLB).

10. Consider a logical address space of 8 pages of 1024 works each, mapped on to a physical memory of 32 frames. Calculate how many bits are there in the physical address?

11. Explain Belady's anomaly? Prove it for memory reference string A, B, C, D, A, B, E, A, C, D, E by taking number of page frame 3 and then 4.

12. How many page fault occur for FIFO page replacement algorithm with 3 frames for the following reference string
        7,0,1,2,0,3,0,4,2,3,0,3,2,1,2

13. Suppose that a disk drive has 181 cylinders, numbered o to 180. The drive is currently serving a request at cylinder 65 and the previous request was at cylinder 50.The pending request are 87,170,40,150,36,72,66,15.Find the total head movement for FCFS algorithm.

14. Assume Single side platter with 50 sector and 150 track .Each block contain 5KB of memory then find the memory space available in the disk.

15. Explain Multilevel Queue Scheduling.

16. Write any two difference between Internal and External fragmentation

17. What is thrashing? State the cause of thrashing.

18. What is virtual memory?