QP Code: RM21BTECH527 | Reg. No | | | | | | | | | | | AY 21

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Sixth Semester Regular) Examinations, May – 2024

21BECOE36011 - Operating Systems

(ECE)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right-hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Draw the diagram that can explain spooling.	CO1	K1
b. What is convoy effect?	CO2	K1
c. Briefly explain about many to one model in thread concept.	CO2	K1
d. If there are 400 tracks in a disk with the constant depending upon the disk drive is 0.004. Find out Seek time if start up time is 0.6 ms.	CO4	K2
e. Differentiate between Trashing and demand paging.	CO3	K1

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Explain about PCB.	8	CO1	K1
b. How process state transition happens? Explain in detail with process state diagram.	7	CO1	K1
(OR)			
c. Explain in detail with diagram about different types of operating systems	10	CO1	K1
d. Explain in detail about the (i) Process creation (step by step) (ii) Process termination.	5	CO2	K1
3.a. The process with their burst time have been given in the table below. Apply both **SJF and FCFS Algorithm** and calculate average turnaround time, average waiting time and average first response time. Compare the performance.	7	CO2	K3

Process	Burst Time(ms)
P1	15
P2	32
P3	4
P4	10

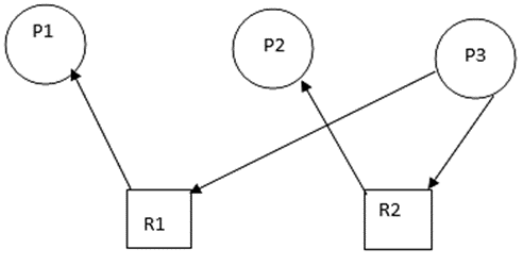
b. The process with their burst time has been given in the table below. Apply **Shortest Time Remaining First Algorithm** and calculate average turnaround time, average waiting time and average first response time.	8	CO2	K3

Process	Arrival Time (ms)	Burst Time(ms)
P1	0	5
P2	1	3
P3	2	4
P4	4	1

(OR)

c.	Provide the concept in detail about the two-process solution for critical section problem.	8	CO3	K2
d.	Explain about critical section and the conditions for the critical section.	7	CO3	K2
4.a.	Explain about Bankers algorithm with proper example.	10	CO3	K3
b.	Differentiate between deadlock avoidance and deadlock prevention.	5	CO3	K3

(OR)

c.	Explain in detail about Semaphore. How it can be used to solve the critical section problem?	5	CO3	K2
d.	 Explain the scenario of the above RAG. When deadlock will be there and when deadlock will be vanished?	10	CO3	K1
5.a.	Differentiate between paging and segmentation. Also explain about Fragmentation.	8	CO3	K2
b.	Explain about the disk in detail. Draw its structure and write all its parameters with formula.	7	CO4	K1

(OR)

c.	Explain in detail about file access methods with diagram.	10	CO4	K1
d.	Differentiate between SCAN and C-SCAN disk scheduling algorithm with diagram.	5	CO4	K1

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