PAPER ID-421484

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM IV) THEORY EXAMINATION 2021-22
OPERATING SYSTEMS

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2*10 = 20

Q.no	Questions	Marks	CO
(a)	Define Operating system and mention its major functions.	2	2
(b)	Briefly define the term Real Time Operating System.	2	1
(c)	What do you mean by Concurrent Processes?	2	2
(d)	Define Seek time and Latency time.	2	1
(e)	What do we need Scheduling?	2	3
(f)	What are the Performance Criteria in CPU Scheduling?	2	3
(g)	Explain the Logical address space and Physical address space diagrammatically.	2	4
(h)	Explain in brief about the Multiprogramming with fixed partitions.	2	4
(i)	What do you mean by the safe state and an unsafe state?	2	5
(j)	What do you mean by the I/O Buffering?	2	5

SECTION B

2. Attempt any *three* of the following: 10*3 = 30

Q.no	Questions	Marks	CO
(a)	Explain in detail about the File system protection and security.	10	5
(b)	Explain in detail about the Mutual Exclusion and Critical Section Problem.	10	2
(c)	Explain in detail about the Process Control Block (PCB) in CPU Scheduling.	10	3
(d)	Explain in detail about the Disk storage and Disk scheduling.	10	4
(e)	Explain in detail about the Multiuser Systems and Multithreaded Systems.	10	1

SECTION C

3. Attempt any *one* part of the following: 10*1 = 10

Q.no	Questions	Marks	CO
(a)	Write short notes on following. i) File system protection and security and ii) Linked File allocation methods	10	5
(b)	Explain in detail about the Dining Philosopher Problem.	10	2

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4. Attempt any *one* part of the following: 10 *1 = 10

Q.no	Questions	Marks	CO
(a)	Explain in detail about the Operating System services.	10	1
(b)	Explain in detail about the Threads and their management.	10	3

5. Attempt any *one* part of the following: 10*1 = 10

Q.no	Questions	Marks	CO
(a)	Explain about the concept of File concept. Define in detail about the File organization and access mechanism.	10	4
(b)	A hard disk having 2000 cylinders, numbered from 0 to 1999. the drive is currently serving the request at cylinder 143,and the previous request was at cylinder 125.The status of the queue is as follows 86, 1470, 913, 1774,948,1509,1022,1750,130 What is the total distance (in cylinders) that the disk arm moves to satisfy the entire pending request for each of the following disk-scheduling algorithms? (i) SSTF (ii) FCFS	10	5

6. Attempt any *one* part of the following: 10*1 = 10

Q.no	Questions	Marks	CO
(a)	Explain in detail about the Inter Process Communication models and Schemes.	10	2
(b)	Explain in detail about the Monolithic and Microkernel Systems.	10	1

7. Attempt any *one* part of the following: 10*1 = 10

Q.no	Questions	Marks	CO
(a)	Explain in detail about the Deadlock System model and Deadlock characterization.	10	3
(b)	Illustrate the following page-replacement algorithms. i) FIFO ii) Optimal Page Replacement Use the reference string 7, 0,1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2,1, 2, 0, 1, 7, 0,1 for a memory with three frames.	10	4

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