TED (21)5132
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Reg. No……………………
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2025

OPERATING SYSTEM

[Maximum Marks: **75**]   [Time: **3** Hours]

PART-A

I. Answer *'all'* the following questions in one word or one sentence. Each question carries *'one'* mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	----------- is used to translate the mnemonic codes to machine code.	M1.02	R
2.	Write two examples for application software.	M1.01	R
3.	What is job queue?	M2.03	R
4.	Expand PCB.	M2.01	R
5.	Which process scheduling algorithm could result in starvation?	M2.03	U
6.	Mapping from one address space to another is called.............	M3.02	U
7.	Name one memory allocation that suffers from external fragmentation.	M3.04	U
8.	Define FAT.	M4.04	R
9.	.............is a named collection of related information that is recorded on secondary storage.	M4.01	U

PART-B

II. Answer any *'eight'* questions from the following. Each question carries *'three'* marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	Compare compiler and interpreter.	M1.02	U
2.	Write any three functions of loader.	M1.02	U
3.	What are the necessary conditions which cause deadlock?	M2.05	R
4.	Explain various scheduling criteria.	M2.06	U
5.	List various address binding schemes in memory management.	M3.02	R
6.	What are the advantages of segmentation over paging?	M3.04	U
7.	Explain contiguous memory allocation in memory.	M3.03	U
8.	Explain file organization.	M4.02	U
9.	Explain indexed allocation method in disk with an example.	M4.04	U
10.	Write any three file operations.	M4.01	R

PART-C
Answer 'all' questions from the following. Each question carries 'seven' marks.
(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	What are the functions of an operating system?	M1.03	R
	OR		

IV.	Write notes on:
	   a) Batch processing system (3 marks)
	   b) Multi processing system. (4 marks)
		M1.04	U

V.	With a neat diagram explain various process states.	M2.02	R
	OR		
VI.	Explain process synchronization.	M2.06	U
VII.	Explain critical section problem.	M2.06	U
	OR		

VIII.	Calculate the waiting time for the following processes with FCFS and SJF scheduling. Arrival time is 0.
	
	      Process Burst time
	        P1 10
	        P2 1
	        P3 2
	        P4 1
	        P5 5
		M2.03	U

IX.	Explain page replacement algorithms.	M3.05	U
	OR		
X.	Explain paging and paging hardware with a neat diagram.	M3.03	U
XI.	Define fragmentation. What are the different types of fragmentation? Explain.	M3.03	R
	OR		
XII.	Given five memory partitions of 100KB, 500KB, 200KB, 300KB and 600KB (in order). Explain first fit, best fit and worst fit memory allocation for the processes 212 KB, 417 KB, 112 KB, and 426KB (in order). Which algorithm makes most efficient use of memory?	M3.04	U
XIII.	Explain various directory structure with diagram.	M4.03	U
	OR		
XIV.	Explain FCFS, SSTF disk scheduling algorithms, using the given disk queue of requests: 82, 170, 43, 140, 24, 16,190. Find the total head movement. Assume that, the disk has 200 cylinders ranging from 0 to 199 and the current position of head is at cylinder 50.	M4.05	U

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