TED (21) – 5132
(REVISION-2021)

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Reg.No………………
Signature…………….

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2024

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' marks.**

(9 x 1 = 9 Marks)

Module Outcome Cognitive level

1	Define the Operating system.	M1.03	R
2	True or False: System software is a type of software that provides a platform for running application software.	M1.02	R
3	What is meant by a process?	M2.01	U
4	What is the state of a process that is waiting for the CPU to become available?	M2.02	R
5	The number of processes completed per unit time is known as …….	M2.03	R
6	The address that is generated by the CPU and used to access memory is called……..	M3.02	R
7	What is a technique that allows a computer to access more memory than is physically available?	M3.04	R
8	What is the purpose of a file extension in a file name?	M4.01	R
9	What is the relative path to a file?	M4.03	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

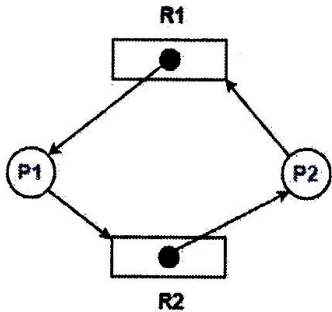| 1	Explain any three functions of an operating system.	M1.03	U
2	What are Batch systems?	M1.04	U
3	What is meant by context switch?	M2.03	U
4	What is contiguous memory allocation?	M3.02	R
5	Explore the concept of TLB (Translation Lookaside Buffer) in paging systems.	M3.03	U

6	Explain the concept of external fragmentation in memory management.	M3.04	U
7	Define Thrashing in the context of operating systems.	M3.05	R
8	What is the primary advantage of a tree-structured directory over a single-level or two-level structure?	M4.04	U
9	Explain the concept of sequential file organization.	M4.03	U
10	What is seek time and rotational latency in disk scheduling?	M4.05	R

PART - C
Answer all the questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

Module Outcome   Cognitive level

III.	Explain assembler, compiler and interpreter.	M1.02	R
	OR		
IV.	Explain the concepts of multiprogrammed and multiprocessor systems.	M1.04	U
V.	Explain the four necessary conditions for the occurrence of deadlock.	M2.05	U
	OR		
VI.	Define process control block(PCB) with its structure.	M2.01	R
VII.	Explain Round Robin (RR) scheduling algorithms with Gantt charts.	M2.04	U
	OR		
VIII.	What is a Resource Allocation Graph (RAG) in the context of deadlocks? Assess the provided graph to determine if a deadlock is present, and explain the reasons for your conclusion.	M2.03	U
IX.	How does the FIFO (First-In-First-Out) page replacement algorithm function? Provide specific examples and scenarios to illustrate its behaviour.	M3.05	U
	OR		
X.	Explain the concept of segmentation in memory management. Describe how segmentation differs from paging.	M3.04	U

XI.	What is first fit, best fit and worst fit memory allocation strategies.	M3.04	R
XII.	**OR** Compare and contrast compile-time, link-time, and run-time binding schemes.	M3.02	U
XIII.	Explain the concept of contiguous file allocation. Explain its advantages and drawbacks compared to other file allocation techniques.	M4.04	U
XIV.	**OR** Consider a disk with the following request queue: 3, 10, 1, 5, 8, 12 The current head position is 7. Assume that the disk has 100Cylinders from 0 to 99. Calculate the total head movement for the FCFS disk scheduling algorithms:	M4.05	U

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