

(4)

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OR

(b) What is a process ? How it is different from Program ? Draw and explain PCB in memory. (CO2)

5. (a) Draw and explain the different states of processes. Explain CPU-I/O burst cycle. (CO1, CO2)

OR

(b) Explain the different types of schedulers. Also, explain the queues which are all available during the process scheduling. (CO1, CO2)

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M. C. A. (FIRST SEMESTER)

MID SEMESTER

EXAMINATION, Nov., 2022

OPERATING SYSTEM

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each sub-question carries 10 marks.

1. (a) Define OS. What are the functions and services of the operating system ? Explain it with the help of a diagram. (CO1)

OR

(b) Write short notes on the following : (CO1)

Batch OS, Real-Time OS, Multitasking OS, Opensource OS, Commercial OS with one example of each.

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2. (a) Differentiate between the following :

(CO1)

- (i) Multitasking and Multiprogramming
- (ii) Process and threads

OR

(b) Differentiate between the following :

(CO1)

- (i) Microkernel and Monolithic kernel
- (ii) User mode and kernel mode

3. (a) Consider the following processes with the length of CPU-burst time given in milliseconds: Apply Non preemptive SJF scheduling for calculating the average waiting time, average turnaround time, CPU utilization and throughput : (CO2)

Process	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

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OR

(b) Consider the following set of processes with the CPU burst time given in milliseconds : (CO2)

Process	Burst Time	Priority
P ₁	10	3
P ₂	1	1
P ₃	2	4
P ₄	1	5
P ₅	5	2

The processes are assumed to arrive at time 0. Draw a Gantt chart for a non-preemptive priority scheduling algorithm. Also, calculate average Turnaround time, average waiting time, CPU utilization and throughput.

4. (a) What is the purpose of the system call ? Explain some system calls, with example. Also, differentiate between function and system. (CO2)

P. T. O.