

(3 Hours)

Total Marks: 80

N.B. 1) Question no.1 is compulsory

2) Solve any **Three** questions from remaining five.

3) Assume suitable data wherever required.

Q1. Define Operating System and also explain objectives and functions of O.S. **10****a.****b.** Consider the following set of processes, with the arrival times and the CPU burst times given in milliseconds. **10**

Process	Burst Time	Arrival Time
P1	15	0
P2	5	0
P3	13	0

Draw Gantt chart, calculate Turnaround Time, Waiting Time, Average Turnaround Time and Average Waiting Time for:

i) First-Come First-Served.

ii) Shortest Job First.

Q2. What are the four conditions that create deadlock? Explain deadlock **10****A** Prevention and avoidance techniques.**B** What is Scheduling? Also explain Short Term, Mid Term and Long Term Scheduling. **10****Q3** Given memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 **10****A** KB(in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order) ? Which algorithm makes the most efficient use of memory?**B** Explain demand paging with suitable example. **10****Q4** What is RAID? What are the different RAID levels? **10****A****B** Compare State full Server v/s Stateless Server with a proper example. **10****Q5** Why there is need for communication between two processes? Explain **10****A** various modes of communication.**b** Explain the page replacement policies implement LRU, OPT, FIFO for the following Sequence : 0, 1, 2, 4, 3, 7, 1, 4, 2, 3. **10**
Also calculate hits and faults.**Q6** What are preemptive and non-preemptive algorithms? Explain any two with **10****A** the help of example.**B** Write short notes on Network O.S vs. Distributed O.S. **10**
