Q.P. Code: 39915

(3 Hours) **[Total Marks: 80]**

N.B. : (1) Question No. 1 is **compulsory**

(2) Solve any **three** questions out of remaining **five**

(3) Make suitable assumption if necessary

1. Solve any four out of five:
   (a) Explain OS as resource manager. **5**
   (b) Explain types of schedulers. **5**
   (c) Differentiate fragmentation. **5**
   (d) Explain importance and types of threads. **5**
   (e) Short-note: Critical Section **5**

2. (a) What is deadlock? Explain deadlock detection and recovery. **10**
   (b) Explain contiguous memory allocation with variable partitions. **10**

3. (a) Paging system consists of physical memory 2^{24} bytes, pages of logical address space is 256. Page size of 2^{10} bytes, how many bits are in a logical address. **10**
   (b) Consider a system with 5 processes and 3 resource types. At a time following snapshot of the system has been taken: **10**

	Allocated		Maximum		Available	
Process ID	R1	R2	R1	R2	R1	R2
P1	1	2	4	2	1	1
P2	0	1	1	2		
P3	1	0	1	3		
P4	2	0	3	2		

Check whether the system is in safe state or not?

4. (a) Explain IO buffering. **10**
   (b) Consider following set of processes with the length of CPU burst time given in ms: **10**

Process	Arrival Time	Burst Time
P1	0	8
P2	1	2
P3	2	3
P4	3	3
P5	4	7

Draw the gantt chart for: FCFS, SJF (preemptive). Calculate turn around time and waiting time in each case.

5. (a) Explain SSF,SCAN and LOOK algorithms. **10**
   (b) Explain different file access methods in detail. **10**

6. Write notes on the following(any four):
   (a) Race conditions. **5**
   (b) Android OS **5**
   (c) I-node **5**
   (d) Monitors **5**
   (e) System calls **5**

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