Time: 3 Hours **Max. Marks: 80**

N.B.: 1) Question No.**1** is **compulsory**.
2) Attempt any **THREE** questions out of remaining **FIVE** questions.
3) **Figures** to the **right** indicates **full** marks.
4) Assume suitable data if **necessary**.

Q1	**Answer any FOUR**	**20**
a	Explain memory fragmentation.	
b	Compare process scheduling and process switching.	
c	Describe the implementation of file allocation techniques?	
d	Explain process state model.	
e	Explain about IPC.	
Q.2		
a	Explain RAID with different levels.	**10**
b	What is a process? Explain Process control block in detail.	**10**
Q.3		
a	What are different types of process scheduling algorithms? Explain anyone scheduling algorithm with example.	**10**
b	What is a critical region? Explain necessary conditions for deadlock.	**10**
Q.4		
a	Give detail comparison of user level and kernel level threads.	**10**
b	What is an Operating System? Explain structure of Operating System.	**10**
Q.5		
a	Explain objectives and characteristics of modern operating system. Explain Network OS.	**10**
b	List page replacement algorithms? Explain anyone page replacement algorithms with example.	**10**
Q.6	**Write short notes on any FOUR**	**20**
a	Deadlock recovery	
b	Real Time OS	
c	Semaphores	
d	Virtual Memory	
e	Android	
f	File Allocation Methods	

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