5 Attempt any **four** :

(a) Define following terms.

(i) Seek time

(ii) Rotational latency

(iii) File Sharing.

(b) Explain Indexed allocation method of disk allocation

(c) What is DMA ?

(d) What are the functions of a file system ?

(e) Draw the file structure for UNIX operating system or Disk operating system (DOS).

(f) List five system calls related to file system.

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(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1077 Roll No.

B. Tech.

(SEM. VI) EXAMINATION, 2008-09

OPERATING SYSTEMS

Time : 3 Hours] *[Total Marks : **100***

1 Attempt any **four** :

(a) Compare multitasking and multiuser operating system.

(b) What are the desirable and essential characteristics of an operating system ?

(c) Explain in brief real time operating systems. Illustrate some areas were they are used.

(d) What are the different services provided by an operating system?

(e) Draw the layered structure of an operating system

(f) What do you mean by system Protection? How it is achieved?

2 Attempt any **four** :

(a) What is PCB (Prcoess Control Block) ?

(b) Explain principle of concurrency.

(c) Demonstrate process synchronization using procedure-consumer problem.

(d) What is critical section ? Design algorithm to solve this problem.

(e) How can the interprocess communication be achieved?

(f) Define following:

(i) Dispatch.

(ii) Context switching.

3 Attempt any **four** : **5×4=20**

(a) Define following terms:

(i) Average waiting time.

(ii) Time Slice or quantum.

(iii) Resposne time.

(iv) Turn Around Time.

(v) CPU Utilization.

(b) What should be the selection criteria for scheduling algorithem ?

(c) Calculate turn around time and average waiting time for following set of processes, if these processes are scheduled using :

(i) SJF

(ii) Priority (both preemptive)

Process	*Burst Time*	*Priority*	*Arrival Time*
P1	7	1	0
P2	3	2	4
P3	9	3	7

(d) What is dead lock and its conditions ?

(e) How dead lock can be avoided ?

(f) Explain the difference between busy waiting and blocking.

4 Attempt any **two** : **10×2=20**

(a) Explain the difference between internal fragmentation and external fragmentation? Which one occurs in paging system? Which one occures in systems using pure segmentatation ? Discuss various ways of removing fragmentation.

(b) Explain the concept of virtiul memory and how it is obtained by Demand Paging and segmentation ?

(c) Write short notes on the following:

(i) Thrashing.

(ii) Cache memory.

(iii) Allocation of frame.

(iv) Dining-Philosopher-Problem.