3 (Sem–5) ELE M 4

2 0 1 7

ELECTRONICS

(Major)

Paper : 5.4

(Operating System)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following questions : 1×7=7

   (a) What is process in operating system?

   (b) What is critical section?

   (c) What is mutual exclusion?

   (d) What is deadlock?

   (e) Why is semaphore used?

(f) What is ciphertext?

(g) What do you mean by cryptography?

2. Answer the following questions : 2×4=8

(a) Why is paging necessary?

(b) What are the states of a process execution?

(c) What is the role of semaphore?

(d) What are the different layers of ISO-OSI model?

3. Answer any *three* of the following : 5×3=15

(a) Explain the different conditions that are necessary for occurrence of deadlock.

(b) How can deadlock be prevented? Explain.

(c) Explain process control block (PCB) with proper diagram.

(d) Briefly explain segmentation in operating system.

(e) Explain the solutions of mutual exclusion in brief.

4. Answer any *three* of the following : 10×3=30

(a) Explain the different layers of ISO-OSI model briefly.

(b) Explain round-robin scheduling algorithm with proper example.

(c) Explain Dijkstra algorithm for mutual exclusion problem.

(d) Write short notes on any *two* of the following :

(i) Parallel and distributed computing

(ii) Shell and kernel

(iii) Different types of operating system

(iv) TCP/IP

(e) Consider the following set of processes with the length of CPU burst time given in seconds. The processes are assumed to arrive in the order P_1, P_2, P_3 :

Process	Burst Time
P_1	10
P_2	15
P_3	6

Calculate the waiting time, turnaround time of each process, when first come first serve scheduling algorithm is employed.

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