

3 (Sem-5) ELE M 4

2 0 1 6

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 : $1 \times 7 = 7$
- (a) What is meant by firmware?
 - (b) What is meant by process?
 - (c) What is meant by semaphore?
 - (d) What is meant by paging?
 - (e) What is meant by deadlock?
 - (f) What is a shell?
 - (g) What is meant by kernel?

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(Turn Over)

2. Answer the following questions : $2 \times 4 = 8$

- (a) List two characteristics of multi-programming operating system.
- (b) List any two events that may lead to state changes of processes.
- (c) List any two advantages of paging scheme.
- (d) What is cryptography?

3. Answer any *three* of the following : $5 \times 3 = 15$

- (a) Write in brief about parallel computing and distributed computing.
- (b) What is process control block (PCB)? Briefly explain the information stored in PCB.
- (c) Describe the necessary conditions for deadlock.
- (d) Briefly explain the basic philosophy of deadlock prevention.
- (e) Briefly explain the memory management activities of operating system.
- (f) Briefly explain the functions of I/O management subsystem.

4. Answer any *three* of the following : $10 \times 3 = 30$

- (a) What is meant by mutual exclusion? Explain the solution of mutual exclusion problem provided by Dijkstra using semaphore.
- (b) Explain relocation in segmented paging system.
- (c) Explain round-robin scheduling. For the following list of jobs, calculate the turnaround time of each job when round-robin scheduling is employed. The time slice is 3 units : $6 + 4 = 10$

Job	CPU Burst
A	8
B	9
C	1

- (d) Explain the functions of each layer in the ISO-OSI model.
- (e) Give brief introduction of any five UNIX system calls for process management and file operations.
- (f) Write short notes on any *two* of the following :
 - (i) Interrupt processing
 - (ii) Virtual storage
 - (iii) File access methods
 - (iv) TCP/IP