



17512

15162

3 Hours / 100 Marks

Seat No.

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- Instructions :** (1) *All questions are compulsory.*
(2) *Figures to the right indicate full marks.*
(3) *Assume suitable data, if necessary.*

- Marks**
(4×3=12)
1. a) Attempt **any 3** of the following.
- 1) List any four functions of operating system.
 - 2) Describe real time operating system in brief.
 - 3) What is process management ? State four functions to be performed by OS for process management.
 - 4) What is file ? List and explain attributes of files.
- b) Attempt **any one** of the following. **(6×1=6)**
- 1) Describe the contiguous allocation method for file, state any two merits and demerits.
 - 2) Describe following operating system structures.
 - i) Monolithic
 - ii) Microkernel.
2. Attempt **any 4** of the following. **(4×4=16)**
- a) Compare Unix and Linux operating system w.r.t.
 - 1) User interface
 - 2) Name of provider
 - 3) Processing speed
 - 4) Security
 - b) Describe evolution of operating system.
 - c) With neat diagram describe use of Process Control Block (PCB).
 - d) Define the following terms :
 - i) Preemptive scheduling
 - ii) Nonpreemptive scheduling.
 - e) Describe working of sequential and direct access methods.
 - f) Explain in brief the unix file system.
3. Attempt **any 4** of the following. **(4×4=16)**
- a) List any four operating system services and describe in one/two sentences.
 - b) Describe concept of virtual memory with suitable example.
 - c) Draw the process state diagram and describe each state in one/two sentences.
 - d) State and explain criteria in CPU scheduling.
 - e) What is FCFS algorithm ? Describe with example.

P.T.O.



4. a) Attempt **any 3** of the following.

(4×3=12)

- a) What is inter process communication ? Describe any one technique of it.
- b) Differentiate between long term scheduler and short term scheduler on basis of
 - i) Selection of job
 - ii) Frequency of execution
 - iii) Speed
 - iv) Accessing which part of system.
- c) What is system call ? List types of system call with one example of system call.
- d) What are the activities involved in secondary storage management ?

b) Attempt **any one**.

(6×1=6)

- a) Describe how semaphores are useful for solving problems of interprocess communication.
- b) Write in short on basic memory management.

5. Answer **any 2** of the following.

(8×2=16)

- a) Describe following terms
 - 1) Scheduling queues
 - 2) Scheduler
 - 3) Thread
 - 4) Multithreading.
- b) Solve the following problem using SJF and Round Robin (RR) scheduling algorithm. Find average waiting time for each algorithm.

Process	Burst time
P ₁	10
P ₂	3
P ₃	7
P ₄	5

- c) Explain how priority scheduling algorithm works with suitable example, also list advantages and disadvantages.

6. Answer **any 4** of the following.

(4×4=16)

- a) Describe how context switch is executed by operating system.
 - b) Explain how parameter passing is done while implementing system calls.
 - c) What is multiprocessor system ? Give two advantages of it.
 - d) Draw and explain structure of unix operating system.
 - e) Describe optimal page replacement algorithm with example.
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