12178

21314

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any <u>FIVE</u> of the following: **20**

a) Describe the multiprocessor systems concepts.

b) Describe monolithic operating system structure.

c) With neat diagram explain process control block.

d) Describe CPU and I/O burst cycle.

e) State the benefits of multithreading.

f) What is swapping and when it is used?

g) Explain the concept of mutual exclusion in detail.

Marks

2. Attempt any FOUR of the following: **16**

a) List memory allocation methods. Explain any one.

b) What is real time operating system?

c) Explain microlevel OS structure.

d) What is deadlock? Write necessary condition of dead lock.

e) What is file? List any four attributes of files.

f) Describe pre emptive and Non-pre emptive scheduling.

3. Attempt any FOUR of the following: **16**

a) Explain FIFO page replacement algorithms for reference string.
7 0 1 2 0 3 0 4 2 3 10 3

b) Draw and explain interprocess communication model.

c) Describe the terms :

i) Scheduling queues

ii) Context switch

d) Describe demand paging in detail.

e) Explain concept of virtual memory in detail with example.

f) Differentiate between multiprogramming and multitasking O.S.

Marks

4. Attempt any <u>FOUR</u> of the following: **16**

a) Explain system booting in detail.

b) Explain process termination.

c) Differentiate between short term and long term schedular.

d) What are different free space management techniques? Describe any one in detail.

e) Explain different process scheduling criteria.

f) State the rules for naming files. How is file security achieved?

5. Attempt any <u>FOUR</u> of the following: **16**

a) Enlist system components? Describe any one in detail.

b) Explain process state with diagram.

c) The jobs are scheduled for execution as follows. Solve following problem using SJF scheduling algorithm.

Process	Burst time
P_1	5
P_2	15
P_3	25
P_4	5

d) Explain Banker's algorithm for deadlock prevention.

e) Describe sequential and direct access methods.

f) What is the purpose of system calls? State two system calls with its functions.

Marks

6. Attempt any <u>FOUR</u> of the following: 16

a) What are different responsibilities of memory management.

b) Explain multilevel feedback scheduling algorithm in detail.

c) Describe priority scheduling algorithm.

d) Describe LRU page replacement algorithm.

e) What are function of OS?

f) Explain contiguous memory allocation for file.

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