

Total No. of Questions : 10]

SEAT No. :

P1359

[Total No. of Pages : 3

[4858] - 1107

T.E. (Information Technology) (Semester - II)

OPERATING SYSTEMS

(2012 Pattern) (End-Sem)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.*
- 2) *Figures to the right hand indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data, wherever necessary.*

Q1) a) What are the OS design consideration for multiprocessor & multicore architecture? [5]

b) Explain different types of schedulers in an operating systems. [5]

OR

Q2) a) Explain any classical synchronization problem. [5]

b) Explain thread & process management in Android Operating System. [5]

Q3) a) What is deadlock? State & explain necessary conditions for deadlock. [5]

b) What is busy waiting with respect to process synchronization? Explain how semaphore reduces the severity of this problem. [5]

OR

P.T.O.

- Q4)** a) For the table given below draw a Gantt chart illustrating process execution using priority non-preemptive scheduling algorithm. (A larger no indicates higher priority) [5]

| Process | A.T. | B.T. | Priority |
|---------|------|------|----------|
| 01 | 0 | 5 | 4 |
| 02 | 2 | 4 | 2 |
| 03 | 2 | 2 | 6 |
| 04 | 4 | 4 | 3 |

- b) What are different requirements for mutual exclusion. [5]

- Q5)** a) Write a short note on paging. [6]

- b) For the following page reference string with 3 frames : [12]

A, B, C, D, E, C, D, A, F, G, H, G, H, I, G, H, I, E, D, E, D, B.

Calculate the no. of page faults for the following page replacement algorithm.

- i) FIFO ii) LRU iii) Optimal

OR

- Q6)** a) Explain memory management in linux. [10]

- b) What is page fault? How the OS handles when a page fault occurs and what are the actions taken by OS explain it with neat diagram. [8]

- Q7)** a) Explain different file organization techniques. [8]

- b) Assume a disk with 200 tracks & the disk request queue has random requests in it as follows : 55, 58, 39, 18, 90, 160, 150, 38, 184. [8]

Find the no. of tracks traversed and average seek length if

- i) SSTF
ii) SCAN
iii) C-SCAN

disk scheduling algorithm is used & initially head is at track no. 100.

OR

- Q8)** a) Describe 3 methods of record blocking with the help of neat diagram. [8]
b) Explain the different file system performance issues. [8]

- Q9)** Write a short note on the following (any three) : [16]
a) Service Oriented Operating System. SOOS.
b) Ubuntu EDGE.
c) Android OS.
d) Embedded Linux

OR

- Q10)** a) Explain procedure of inserting new module in existing kernel with all necessary steps. [8]
b) Explain NACH OS Components in brief. [8]

