

Total No. of Questions : 10]

SEAT No. :

**P2912**

**[4958]-1107**

[Total No. of Pages : 3

**T.E.(Information Technology)**

**OPERATING SYSTEMS**

**(2012 Course) (Semester-II) (314451)(End - Sem)**

*Time :2½Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Attempt Q1 or Q2, Q3or Q4, Q5 or Q6, Q 7 or Q8, Q 9 or Q10.*
- 2) *Figures to the right hand indicates full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable data if necessary.*

**Q1)** a) Explain the difference between a monolithic kernel and a microkernel with advantages & disadvantages. **[5]**

b) Describe in detail the functions of OS as a resource manager. **[5]**

OR

**Q2)** a) Explain deadlock prevention techniques with example. **[5]**

b) What is Operating system? Explain any two types of OS in detail. **[5]**

**Q3)** a) Explain thread life cycle **[5]**

b) Explain FCFS scheduling with example **[5]**

OR

**Q4)** a) Draw and explain process state transition diagram. **[5]**

b) What are the requirements for mutual exclusion? **[5]**

**Q5)** a) What are requirements for memory management? **[8]**

b) Consider the following page reference string:

1 2 3 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 6 **[8]**

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

i) FIFO

ii) Optimal

iii) LRU

OR

**P.T.O.**

**Q6) a)** Explain buddy system with example. [8]

b) Consider the following segment table: [8]

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580
4	1952	96

What are the physical addresses for the following logical addresses?

i) 0,430      ii) 1,10      iii) 2,80      iv) 3,400      v) 4,90

**Q7) a)** List and briefly explain three techniques for performing I/O. [8]

b) List and briefly define file organization techniques. [8]

OR

**Q8) a)** List and briefly define three blocking methods. [8]

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

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

i) SSTF      ii) SCAN

iii) C-SCAN

algorithms are used and initially head is at track no 100. [8]

**Q9)** a) What is kernel module? Explain the process for inserting a module in the kernel. [8]

b) With neatly labeled diagram explain embedded linux system architecture [10]

OR

**Q10)** Write a short note on any three [18]

- a) NACH OS.
- b) SOOS
- c) Ubuntu EDGE
- d) Embedded OS

