[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 & multicare 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 respective to process synchronization? Explain how semaphore reduces the severity of this problem. **[5]**

OR

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) Ubunty 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]**

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