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P514

SEAT No. :
[Total No. of Pages : 2

TE/Insem/APR - 46
T.E. (IT)
INFORMATION TECHNOLOGY
(2012 Pattern)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) *Answers Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
- 2) *Figures to the right indicate full marks.*
- 3) *Use of steam table and scientific calculator is allowed.*
- 4) *Assume data wherever necessary and mention it.*
- 5) *Draw neat and suitable figures wherever necessary.*

SECTION - I

- Q1)** a) Draw and explain the architecture of windows - 2000. [6]
b) Explain the difference between a monolithic kernel and a microkernel. [4]

OR

- Q2)** a) Explain Modern and Traditional Unix kernel with diagram. [6]
b) List and briefly explain five storage management responsibilities of a typical OS. [4]

- Q3)** a) Consider the following set of processes : [8]

Process Name	Arrival Time	Processing Time
A	0	3
B	1	5
C	3	2
D	9	5
E	12	5

Apply FCFS, RR with $q = 1$, SJF preemptive Non - preemptive and show Avg. waiting time and Turn around time.

- b) With the help of neat diagram explain the concept of context switching. [2]

P.T.O.

OR

- Q4)** a) Draw and explain the Unix process state transition diagram. [2]
b) What is the difference between turnaround time and response time? [2]

Q5) a)

Available												

If a request from p₃ arrives for (0, 1, 0, 0), can that request be safely granted immediately? In what state (safe, unsafe) would immediately granting that whole request leave the system?

- b) Define the terms : [2]
i) Deadlock
ii) Livelock

OR

- Q6)** a) Write a short note on : critical section and mutual exclusion. [5]
b) Implement the dining philosopher problem using semaphores and discuss how the critical section requirements are fulfilled? [5]

