Total No. of Questions : 6]

SEAT No. :

P5386

[Total No. of Pages : 2

T.E./Insem.-644
T.E. (Information Technology)
OPERATING SYSTEM (Semester - I)
(2015 Pattern)

Time :1 hour] *[Max. Marks :30*

Instructions to the candidates:

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

Q1) a) State and explain different services provided by an Operating System. **[6]**

b) Explain the following shell commands with example. **[4]**

i) Chmod ii) Grep iii) Cat iv) Sort

OR

Q2) a) Explain the concept of virtual machine with its benefits. **[4]**

b) Write a shell script for sorting a given list of numbers using any sorting strategy. **[6]**

Q3) a) For the table given below calculate average waiting time and average turnaround time and draw a Gantt Chart illustrating the process execution using following scheduling algorithms. **[8]**

i) RR (Time slice-2units) ii) SJF (non-preemptive)

Process	Arrival Time	Burst Time
P1	0	8
P2	1	5
P3	3	3
P4	4	1
P5	6	4

b) Differentiate between process and thread. **[2]**

P.T.O.

OR

Q4) a) For the table given below, calculate average waiting time and average turnaround time, also draw a Gantt Chart illustrating the process execution using following scheduling algorithms. **[8]**

i) FCFS ii) SJF (preemptive)

Process	Arrival Time	Burst Time
P1	0	9
P2	1	1
P3	2	7
P4	3	1
P5	4	6

b) Define Context Switch. **[2]**

Q5) a) Consider the following snapshot of a system: **[6]**

	Allocation				Maximum				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

Answer the following questions using banker's algorithm.

i) What are the contents of Need matrix?

ii) Is the system in a safe state?

b) Explain busy waiting with appropriate example? **[4]**

OR

Q6) a) Write a pseudo code for producer-consumer problem using semaphores. **[6]**

b) Explain the necessary and sufficient conditions for the occurrence of a deadlock. **[4]**