SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | |

Total number of pages:[ ]
Total number of questions:06

B.Tech. || CSE ||4th Sem

Operating System

Reg/RP

Subject Code:BTCS-401A/401

Paper ID: (for office use)

(2011 Batch onwards)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**
- **Additional instructions, if any**

PART A (10×2)

Q. 1. Short-Answer Questions: All COs

(a) What is Command Interpreter?
(b) Describe the difference between short term and long term schedulers.
(c) What is preemptive scheduling of the process?
(d) Describe various states of a process.
(e) Define Deadlocks?
(f) What is the difference between internal and external fragmentation?
(g) What are the functions of I/O controller?
(h) What is thrashing? Describe the cause of thrashing.
(i) Define file management.
(j) What is Distributed Operating System?

PART B (5×8)

Q. 2. Define operating system. Name the various types of operating systems. Explain the services provided by an operating system. CO1

OR

What is operating system? Explain operating system structure in detail. CO1

Q. 3. Consider the following set of processes, with length of CPU bounds given in milli seconds. Assume processes to have arrived in order shown below in the table and higher number defines higher priority. CO2

Process	Arrival Time	Burst Time	Priority
P1	0	5	1
P2	1	3	2
P3	2	8	1
P4	3	6	3

a. Draw Gantt charts for following algorithms: FCFS,SJF, non preemptive priority and Round Robin scheuling (quantum =3 ms)
b. Calculate average Turn-Around times, Average Waiting times for all the algorithms.
c. Which of all algorithms result in minimum average waiting time.

OR

Explain the various problems of process snychronization. CO2

Q. 4. What is the need of virtual memory ? Explain paging in detail. CO3

OR

Consider the following page reference string: CO3
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6
How many page faults would occur for the following page replacement algorithms, assuming three frames? Remember that all frames are initially empty.

- FIFO page replacement
- Optimal page replacement
- LRU page replacement

Q. 5. Explain Disk Storage structure and any three disk scheduling algorithms with examples. CO4

OR

What are the functions of File System and how would you classify various file access methods with their advantages and disadvantages. CO4

Q. 6. Explain the difference between security and protection of an operating system. CO5

OR

Explain the architecture of LINUX and how it is different from windows based operating system. CO5