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SARDAR PATEL UNIVERSITY
B.Sc Information Technology Examination
5th Semester (CBCS) (Regular & NC-All)
Monday , Date: 29/10/2018
Session : Morning Time : 10:00 A.M to 1:00 P.M.

Subject Code: US05CINT04
Subject Title : Operating Systems

Total Marks: 70

Q1. Multiple Choice Questions. [Attemp all] [10]

1. The number of processes completed per unit time is known as _____.
   a. Turn-around time
   b. Waiting time
   c. Throughput
   d. Access time

2. First In First Out scheduling is _____.
   a. Priority based
   b. Preemptive
   c. Non-Preemptive
   d. Time Slice based

3. _____ page replacement algorithm suffers from Belady's anomaly.
   a. FIFO
   b. Priority
   c. Optimal
   d. SJF Preemptive

4. Access to a page marked invalid causes _____.
   a. Invalid
   b. Valid
   c. Page Fault
   d. Page Access

5. Solution to internal fragmentation is _____.
   a. Paging
   b. Fragmengtation
   c. Segmentation
   d. Compaction

6. A fixed sized buffer is known as _____.
   a. Bounded
   b. UnBounded
   c. Limited
   d. UnLimited

7. Each process has a segment of code called _____.
   a. Waste section
   b. Critical section
   c. Important section
   d. Mutual section

8. Directed graph in which Deadlock can be described called _____.
   a. Allocation Graph
   b. Resource Allocation Graph
   c. Deadlock graph
   d. Blocked Graph

9. _____ Option of ls command will sort output according to size of file.
   a. -l
   b. -d
   c. -a
   d. -s

10. The if statement ends with _____.
   a. end
   b. end if
   c. fi end
   d. fi

(P.T.O.)

Q2. Answer the following short questions (Attempt any TEN) [20]

1. Define Operating system.
2. Explain difference between Preemptive and Non-Preemptive Scheduling algorithms.
3. Draw the diagram of PCB.
4. What is Belady's Anomaly?
5. Explain Best-fit memory allocation techniques.
6. List types of memory fragmentation.
7. Explain any two necessary conditions of Deadlock.
8. Explain resource utilization in details.
9. Justify "Linux is a Secure Operating System".
10. Explain ls command in brief.
11. Explain date command along with its options.
12. Explain chmod command with example.

Q3.[a] Explain SJF scheduling algorithm in brief. Draw Gantt chart and find average waiting time(AWT) (when all processes arrive at the same time) using [6]

PROCESS	CPU BURST TIME
P1	6
P2	8
P3	3
P4	2

[b] Explain Layered approach in brief. [4]

OR

Q3.[a] Explain process states with diagram in detail. [6]

[b] Which are the functions performed by Operating System? [4]

Q4.[a] Explain the FIFO Page replacement algorithm in detail . Also calculate the total number of Page faults using FIFO algorithm for following reference string: [6]

(Number of Frames = 3)

Reference string = 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

[b] What is Demand Paging? Explain in brief. [4]

OR

Q4.[a] What is Fragmentation? List different types of Fragmentation. Explain in details. [6]

[b] Explain First-Fit and Best Fit memory allocation techniques. [4]

Q5.[a] What is LINUX? Explain basic features of LINUX Operating System [5]

[b] Explain algorithm 3 for two-process solution. [5]

OR

Q5.[a] What is Cooperative Process? Explain Producer-Consumer Problem in detail. [6]

[b] Explain how Deadlock can be prevented? [4]

Q6. Explain following Linux commands in brief : [10]

i) mv ii) grep iii) cp iv) who v) pwd

OR

Q6. Explain following Linux statements in detail : i) if statement ii) for loop [10]