

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name: Operating System

Subject Code: 4CS05BOS1

Branch: B. C. A.

Semester: 5 Date: 04/12/2015 Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1 Attempt the following questions:

[14]

- a) **Unix Operating System is an _____.**
A) Time Sharing Operating System B) Multi-User Operating System
C) Multi-tasking Operating System D) All the Above
- b) **The number of processes completed per unit time is known as _____.**
A) Output B) Throughput C) Efficiency D) Capacity
- c) **In memory management, a technique called as paging, physical memory is broken into fixed-sized blocks called _____.**
A) Pages B) Frames C) Blocks D) Segments
- d) **PCB = ?**
A) Program Control Block B) Process Control Block
C) Process Communication Block D) None of the above
- e) **A thread is a _____ process.**
A) Heavy Weight B) Multi-process C) Inter Thread D) Light weight
- f) **A process said to be in _____ state if it was waiting for an event that will never occur.**
A) Safe B) Unsafe C) Starvation D) Dead lock
- g) **The mechanism that brings a page into memory only when it is needed is called?**
A) Demand Paging B) Fragmentation C) Segmentation D) Page Replacement
- h) **A page fault occurs**
A) when the page is not in the memory B) when the page is in the memory
C) when the process enters the blocked state D) when the process is in the ready state
- i) **A _____ contains information about the file, including ownership, permissions, and location of the file contents.**
A) File Control Block (FCB) B) File C) Device drivers D) File system
- j) **In _____ OS, the response time is very critical.**



- A) Multitasking B) Batch C) Online D) Real-time

k) Which is not an Operating System?

- A) Windows 95 B) MS-DOS C) Windows 3.1 D) Windows 2000

l) The collection of processes on the disk that is waiting to be brought into memory for execution forms the _____

- A) Ready queue B) Device queue C) Input queue D) Priority queue

m) A program at the time of executing is called _____.

- A) Dynamic program B) Static program C) Binded Program D) A Process

n) _____ allocates the largest hole available in the memory.

- A) Best Fit B) Worst Fit C) First Fit D) None of the above

Attempt any four questions from Q-2 to Q-8

Q-2 Attempt all questions

- a) Explain the Functions of Operating System [05]
b) Explain Multi-programmed Operating System [05]
c) Explain Batch Operating System [04]

Q-3 Attempt all questions

- a) What is Process? Explain Process State Diagram [05]
b) Explain Process Control Block in details [05]
c) Explain SJF Scheduling with example [04]

Q-4 Attempt all questions

- a) What is Deadlock? Explain methods of handling deadlock situation [05]
b) Explain various Deadlock Prevention techniques [05]
c) Explain how to Recover from Deadlock [04]

Q-5 Attempt all questions

- a) Explain Segmentation in Detail [05]
b) What is Virtual Memory? Explain Virtual Memory using Demand Paging [05]
c) Explain the types of Memory Fragmentation [04]

Q-6 Attempt all questions

- a) Explain various File Operations [05]
b) Explain File & Directory Structure [05]
c) Explain File Attributes [04]

Q-7 Attempt all questions

- a) Explain Architecture of UNIX in detail [05]
b) Explain various types of Shell in UNIX [05]
c) Explain types of Files in UNIX [04]

Q-8 Attempt all questions



- a) Consider the following set of processes, with the length of the CPU-burst time given in milliseconds: [05]

Process	Arrival Time (ms)	Burst Time (ms)	Priority
P1	0.0	3	4
P2	0.4	1	2
P3	0.7	8	1
P4	1.0	4	5
P5	1.1	2	3

- i. Draw Gantt charts of these processes using FCFS, SJF, Priority (a smaller priority implies a higher priority)
 - ii. Calculate Turnaround Time and Waiting Time of each process
- b) Explain following commands (any five) [05]
who, ls, pwd, chgrp, mkdir, wc, more
- c) Discuss System Structure [04]

