

[43]

Sardar Patel University
External Examination (NC)
M.Sc. (Information Technology) Semester – I
PS01CINT24: Operating System Concepts
19th April, 2018 Thursday

Time: 02:00 PM to 05:00 PM

Max. Marks: 70

- Q-1 Choose the most appropriate option for each question. [08]**
- (i) ___ system guarantees that critical task completes on time.
 - a) Hard real time
 - b) Soft real time
 - c) Hard time sharing
 - d) Soft time sharing
 - (ii) The time for disk arm to move the heads to the cylinder
 - a) Seek Time
 - b) Rotational Latency
 - c) Bandwidth
 - d) Waiting Time
 - (iii) A process under execution is said to be in the ___ state.
 - a) Ready
 - b) Waiting
 - c) Running
 - d) New
 - (iv) The operating system starts in ___ mode.
 - a) User
 - b) Kernel
 - c) Supervisor
 - d) Both (b) and (c)
 - (v) ___ is a solution of indefinite blocking problem.
 - a) Blocking
 - b) Aging
 - c) Swapping
 - d) Paging
 - (vi) Which of the following operation cannot be performed on file?
 - a) Create
 - b) Delete
 - c) Update
 - d) None of these
 - (vii) Which of the following is not a level of RAID?
 - a) 1 + 0
 - b) 0 + 1
 - c) 1 + 1
 - d) None of these
 - (viii) Which of the following algorithm is solution to the critical section problem?
 - a) FIFO
 - b) SJF
 - c) LRU
 - d) None of these

- Q-2 Answer ANY SEVEN from the following [14]**
- (i) What do you mean by the term "Interrupt"?
 - (ii) What is a privileged instruction?
 - (iii) Draw the diagram to represent PCB.
 - (iv) Briefly explain the purpose of medium term scheduler.
 - (v) What is monitor?
 - (vi) Briefly explain compile time address binding.
 - (vii) List various models of multithreading.
 - (viii) List advantages of RAID.
 - (ix) Briefly explain any two types of files by giving suitable example.

Q-3
A. Write a note on operating system services. [06]

B. What is command interpreter? Explain the working of command interpreter in detail. [06]

OR

B. What is clustered system? Explain different types of clustered systems.

Q-4
A. Draw and explain process state diagram. [06]

B. Write a note on shared memory systems for inter process communication. [06]

OR

B. Write a note on semaphores.

Q-5
A. Write a note on segmentation. [06]

B. What is virtual memory? Explain the concept of demand paging for virtual memory. [06]

B. OR

Explain FIFO page replacement algorithm by considering following reference string:

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

Assume that each process is given four frames in the memory.

Calculate number of page faults for the same.

Q-6
A. Explain SSTF disk scheduling algorithm by giving suitable example of your choice. Show the calculation of total movement of cylinders. [06]

B. What do you mean by the word "Secondary Storage"? draw a diagram of magnetic disc and briefly explain the major components. [06]

OR

B. Write a note on directory structure.

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