(ix)

Sardar Patel University **External Examination**

M.Sc. (Information Technology) Semester - I PS01CINT05: Operating System Concepts 19th April, 2018 Thursday

Max. Marks: 70 Time: 02:00 PM to 05:00 PM [08] Choose the most appropriate option for each question. Q-1 system guarantees that critical task completes on time. (i) b) Soft real time a) Hard real time d) Soft time sharing c) Hard time sharing The time for disk arm to move the heads to the cylinder (ii) b) Rotational Latency a) Seek Time d) Waiting Time c) Bandwidth A process under execution is said to be in the _ state. (iii) b) Waiting a) Ready d) New c) Running The operating system starts in ___ mode. (iv) b) Kernel a) User d) Both (b) and (c) c) Supervisor is a solution of indefinite blocking problem. (v)b) Aging a) Blocking d) Paging c) Swapping Which of the following operation cannot be performed on file? (yi) b) Delete a) Create d) None of these c) Update Which of the following is not a level of RAID? (vii) b) 0 + 1a) 1+0d) None of these c) 1 + 1Which of the following algorithm is solution to the critical section problem? (viii) b) SJF a) FIFO d) None of these c) LRU [14] Answer ANY SEVEN from the following Q-2 What do you mean by the term "Interrupt"? (i) What is a privileged instruction? (ii) Draw the diagram to represent PCB. (iii) Briefly explain the purpose of medium term scheduler. (iv) What is monitor? (v) Briefly explain compile time address binding. (vi) List various models of multithreading. (vii) List advantages of RAID. (viii) Briefly explain any two types of files by giving suitable example.

| Q-3 A. | Write a note on operating system services. | [06 |
|-----------|--|------|
| В. | What is command interpreter? Explain the working of command interpreter in detail. | [06] |
| В. | OR | Į00 |
| | What is clustered system? Explain different types of clustered systems. | |
| Q-4 | | |
| A. | Draw and explain process state diagram. | [06] |
| В. | Write a note on shared memory systems for inter process communication. OR | [06] |
| В. | Write a note on semaphores. | |
| Q-5 A. | Write a note on segmentation. | [06] |
| В. | What is virtual memory? Explain the concept of demand paging for virtual | [06] |
| В. | memory. | |
| | 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. | |
| Q-6 | Calculate number of page faults for the same. | |
| A. | Explain SSTF disk scheduling algorithm by giving suitable example of your choice. Show the calculation of total movement of cylinders. | [06] |
| В. | What do you mean by the word "Secondary Storage"? draw a diagram of magnetic disc and briefly explain the major components. | [06] |
| В. | Write a note on directory structure. | |
| - | V | |
| | V | |