

[104]

**Sardar Patel University**  
**External Examination**

**M.Sc. (Information Technology) Semester – I**  
**PS01CINT05: Operating System Concepts**  
**27<sup>th</sup> March, 2019 Wednesday**

Time: 10:00 AM to 01:00 PM

Max. Marks: 70

**Q-1 Choose the most appropriate option for each question.****[08]**

- (i) Which of the following is **NOT** relevant in case of memory?  
 a) Space                                      b) Address  
 c) Time                                        d) None of These
- (ii) \_\_\_ is a memory in electronic form.  
 a) Hard Drive                                b) Optical Disk  
 c) Flash Drive                                d) Tape Drive
- (iii) Which of the following is **NOT** a type of file?  
 a) .jpg                                         b) .org  
 c) .jpeg                                        d) .doc
- (iv) \_\_\_ provide an interface to the services made available by an operating system.  
 a) Function call                              b) System call  
 c) API                                         d) All of these
- (v) \_\_\_ is a program which manages entire computer hardware.  
 a) Operating System                        b) Database  
 c) System Call                                d) None of these
- (vi) Which of the following is **NOT** a structure of page table?  
 a) Hierarchical                                b) Hashed  
 c) Inverted                                     d) None of these
- (vii) Synonym of PCB is \_\_\_.  
 a) PCR                                         b) TCB  
 c) TCR                                         d) TBC
- (viii) Which of the following necessary conditions of deadlock cannot be made false to prevent from dead lock?  
 a) Mutual Exclusion                            b) Hold and Wait  
 c) No Preemption                             d) Circular Wait

**Q-2 Answer ANY SEVEN from the following****[14]**

- (i) List roles of operating systems.  
 (ii) What are main benefits of virtual machines?  
 (iii) List benefits of multithreading.  
 (iv) What is swapping?  
 (v) What is Monitor?  
 (vi) Briefly explain concept of virtual memory.  
 (vii) What is stack algorithm?  
 (viii) List different structures of directory.  
 (ix) What is seek time in context of secondary storage?

①

(P.T.O.)

Q-3

A. Write a note on services provided by operating systems to the users. [06]

B. Explain the working of operating system in dual mode operation by giving example. [06]

OR

B. What is system call? Briefly explain different types of system calls.

Q-4

A. Draw and explain queuing diagram. [06]

B. Write a note on message passing systems for inter process communication. [06]

OR

B. Write a note on semaphores.

Q-5

A. Explain compile time, load time and run time address binding in detail. [06]

B. Explain different types of fragmentations along with their solutions. [06]

OR

B. Explain optimal 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 C-SCAN disk scheduling algorithm by giving suitable example of your choice. Show the calculation of total movement of cylinders. [06]

B. What is RAID? Explain any two benefits of RAID by giving suitable examples. [06]

OR

B. Write a note on secondary storage device.

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(2)