

[46]  
A-26

Seat No \_\_\_\_\_

No. of Printed Pages: 2

# SARDAR PATEL UNIVERSITY

M. Sc. I. T. (Integrated) Examination, 3<sup>rd</sup> Semester

Thursday, 20<sup>th</sup> October, 2016

PS03CIIT01: Operating Systems – I

Time: 02:00 PM to 05:00 PM

Total Marks: 70

**Note:** Answer of all the questions (including Multiple Choice Questions) should be written in the provided answer book only

**Q:1 Give answers of following Multiple Choice Questions [10]**

[01] Compiler is an example of which components of Operating system?

- (A) Hardware (B) System program  
(C) Application program (D) None of above

[02] \_\_\_\_\_ types of OS used in scientific research and robotics.

- (A) Time-sharing (B) Real-time  
(C) Multi-user (D) None of above

[03] At which layer Operator resides?

- (A) Layer 1 (B) Layer 5  
(C) Layer 3 (D) Layer 2

[04] A newly created process resides in \_\_\_\_\_ queue.

- (A) Job (B) Ready  
(C) Running (D) Waiting

[05] \_\_\_\_\_ Scheduler select process from ready queue for execution.

- (A) Short-term (B) Long-term  
(C) Medium-term (D) None of above

[06] \_\_\_\_\_ is a disadvantage of Priority system.

- (A) Aging (B) Starvation  
(C) Trap (D) None of above

[07] Which of the following is NOT the valid resource utilization state?

- (A) Execution (B) Request  
(C) Use (D) Release

[08] \_\_\_\_\_ not a valid deadlock characteristics.

- (A) Hold & Wait (B) No-preemption  
(C) Preemption (D) None of above

[09] \_\_\_\_\_ is the rate at which the data flow between drive and the computer.

- (A) Transfer rate (B) Positioning time  
(C) Rotational latency (D) Seek time

[10] ECC stands for \_\_\_\_\_.

- (A) Error Correcting Code (B) Error Copy Code  
(C) Error Correct Code (D) Error Code Correction

- Q:2 Answer the following short questions (any Ten) [20]**
- [01] List advantages of multi-user OS.
  - [02] Define: File, Job.
  - [03] List functions of operating system.
  - [04] Explain any two process scheduling criteria in brief.
  - [05] What is Context Switching?
  - [06] What are Turnaround Time and Response Time?
  - [07] Explain any two necessary conditions of Critical section.
  - [08] When Race conditions arise?
  - [09] What is semaphore? What is its disadvantage?
  - [10] What is head crash?
  - [11] What is FireWire?
  - [12] What is disk bandwidth? How it can be improved?
- Q:3 [A] Explain Layered and Client – Server model in detail. [10]**
- OR**
- Q:3 [B] Which are the functions performed by Operating System, explain in detail? [06]**
- [C] List out various types of OS. Explain Time Sharing OS. [04]**
- Q:4 [A] Describe FCFS scheduling with advantages and disadvantages. [06]**
- [B] Explain Priority Scheduling algorithm in brief. [04]**
- OR**
- Q:4 [C] Explain SJF scheduling algorithm in brief. [06]**
- [D] Explain process state and PCB in brief. [04]**
- Q:5 [A] Explain Peterson’s solution. [06]**
- [B] What is Process Synchronization? Explain. [04]**
- OR**
- Q:5 [C] Write note on deadlock prevention. [06]**
- [D] State and explain requirements for solution to critical section problem. [04]**
- Q:6 [A] Explain SCAN disk scheduling algorithm with example. [05]**
- [B] Explain RAID level 0, 1, and 2 [05]**
- OR**
- Q:6 [C] Explain FCFS disk scheduling algorithm with example. [05]**
- [D] Write detailed note on magnetic disk. [05]**

(2)

$x = x = x$