Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code:2140702 Date:23/11/2016

Subject Name:Operating System

Time:02:30 PM to 05:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 Short Questions (1 Mark for each) 14

1 Which one is not Operating System?
A) DOS B) LINUX
C) Windows D) ORACLE

2 In producer-consumer problem, when buffer status is partially empty _____ has to wait
A) Producer B) Consumer
C) None D) Both

3 Operating System do not provide this type of service
A) Graphical User Interface B) Error Solution
C) Input-Output Operation D) Program Execution

4 Process termination in Operating System does by
A) Quit() B) Exit()
C) Close() D) None of the Above

5 If the resources are always preempted from the same process, _____ can occur
A) Deadlock B) Aging
C) System Crash D) Starvation

6 As per banker's algorithm if Allocation (1,3,5,4), Need (1,0,0,2), Available (1,5,3,2) then new available resource is _____
A) Resource is not granted B) (2,8,8,6)
C) Request is granted D) Both B & C

7 The Basic Input Output System (BIOS) resides in
A) ROM B) RAM
C) CPU D) Memory Cache

8 The _____ keeps state information about the use of I/O components.
A) CPU B) OS
C) Kernel D) Shell

9 Which of the following is a strong password?
A) 19thAugust88 B) Delhi88
C) P@ssw0rd D) !augustdelhi

10 _____ is a unique tag, usually a number identifies the file within the file system
A) File Identifier B) File Name
C) File Type D) None of the Above

11 Logical memory is broken into blocks of the same size called _____
A) frames B) Backing Store
C) Pages D) None of these

12 Process creation in UNIX does by

A) New() B) Fork()
C) MAKE() D) PARENT()

13 What is the key function of OS?

A) User Conveniences B) Ability to evolve
C) Efficient Use D) All of the Above

14 _____ used for representing ready queue

A) Linked List B) Binary Tree
C) Stack D) Circular Queue

Q.2 **(a)** Explain Race Condition regarding banking problem. **03**

(b) Explain Distributed OS with neat sketch and give its pros and cons. **04**

(c) Explain Swapping and Fragmentation in detail. **07**

OR

(c) Explain all Accessing Methods of File. **07**

Q.3 **(a)** Explain Thread Life Cycle with diagram. **03**

(b) What is RAG? Explain briefly. **04**

(c) Which are the major goals of I/O software? Explain DMA. **07**

OR

Q.3 **(a)** Define term Scheduler, Scheduling and Scheduling Algorithm with example. **03**

(b) Discuss some security goals. **04**

(c) What is Semaphore? Explain its properties along with drawbacks. Explain any problem and solve it by Semaphore. **07**

Q.4 **(a)** Write a Shell Script to find factorial of given number. **03**

(b) Write a short note on Critical Section. **04**

(c) Which are the necessary conditions for Deadlock? Explain Deadlock recovery in brief. **07**

OR

Q.4 **(a)** Which three are Page Replacement Algorithms? Discuss it in terms of page faults. **03**

(b) Explain Authentication based on password. **04**

(c) Explain TLB and Virtual Memory. **07**

Q.5 **(a)** What is Kernel? Differentiate between Monolithic Kernel and Micro Kernel. **03**

(b) Briefly describe SCAN. **04**

(c) Differentiate between preemptive and non-preemptive scheduling. Solve following by SJF preemptive and non-preemptive. Draw Gantt Chart, Average Waiting Time and Average Turnaround Time. Which one is better as per average turnaround time? **07**

Process	Arrival Time	Burst Time
P1	0	6
P2	1	4
P3	3	5
P4	5	3

OR

Q.5 **(a)** How to Organize Files by Index? **03**

(b) Explain following Commands in UNIX **04**
1) man 2) finger

(c) Define following terms. **07**

1. Throughput
2. Waiting Time
3. Turnaround Time
4. Response Time

5. Granularity
6. Short Term Scheduler
7. CPU Utilization

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