B.Tech Sem – VI (2007 Course) (Computer Engg.) : SUMMER - 2019

SUBJECT: OPERATING SYSTEM

Day : Monday
Date : 27/05/2019

S-2019-3114

Time: 02.30 PM TO 05.30 PM
Max Marks : 80

N.B. :

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of remaining attempt **ANY TWO** question form Section – **I** and Section – **II**.
2) Figures to the right indicate **FULL** marks.
3) Answer to both the sections should be written in **SAME** Answer book.
4) Draw neat and labeled diagram **WHEREVER** necessary.
5) Use of non-programmable calculator is **ALLOWED**.
6) Assume suitable data, if necessary.

SECTION – I

Q. 1 **a)** Explain batch system in detail. Compare multiprogramming and multitasking with suitable example. **(06)**

b) Define the term thread. Explain multithreading in detail. **(04)**

c) Explain different deadlock prevention techniques. **(04)**

Q. 2 **a)** State and explain different services provided by operating system. **(07)**

b) Explain with neat diagram distributed operating system and explain how transition happens from user to Kernel mode. **(06)**

Q. 3 **a)** Explain process scheduling. List different types of scheduler with the help of state transition diagram. **(07)**

b) Discuss the concept of aging and starvation problem. Also explain multilevel queue with suitable example. **(06)**

Q. 4 **a)** Illustrate with suitable example the different necessary conditions for the occurrence of deadlock. **(07)**

b) Consider the following snapshot of a system with the resources A, B, C as 10, 5, 7 respectively: **(06)**

Process	Allocation			Maximum			Available		
	A	B	C	A	B	C	A	B	C
P_0	0	1	0	7	5	3	3	3	2
P_1	2	0	0	3	2	2			
P_2	3	0	2	9	0	2			
P_3	2	1	1	2	2	2			
P_4	0	0	2	4	3	3			

Solve using Banker's algorithm:

a) Compute the content of the matrix need.

b) Is the system in a safe state?

P. T. O.

SECTION - II

Q. 5 **a)** Discuss the different advantages of segmentation. **(04)**

b) Describe QOS concept in multimedia OS with adaptation. **(04)**

c) Explain RAID O and RAID 1 structure in OS. **(06)**

Q. 6 **a)** Explain the advantages and disadvantages of contiguous and non-contiguous memory allocation. **(07)**

b) Explain in brief the different page replacement algorithm and calculate page fault using optimal page replacement for the following reference string: **(06)**

7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1
assume frame size = 3.

Q. 7 **a)** Explain multimedia file system in detail. **(07)**

b) Describe resource management in Multimedia OS. **(06)**

Q. 8 **a)** Explain various disk scheduling algorithms. **(07)**

b) Explain how file management is done by OS. **(06)**

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