BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)
B.Tech.Sem - VI COMPUTER : : SUMMER - 2022
SUBJECT : OPERATING SYSTEM

Day : Monday   Time : 02:30 PM-05:30 PM
Date : 13-06-2022   **S-13657-2022**   Max. Marks : 60

N.B.
1) All questions are **COMPULSORY**.
2) Use of non-programmable calculator is **ALLOWED**.
3) Figures to the right indicate **FULL** marks.
4) Draw a neat and labeled diagram **WHEREVER** necessary.
5) Assume suitable data, if necessary.

Q.1 Explain the system components of the Operating System. **(10)**
Describe the two general goals of the Operating System and elaborate why these goals are important.

OR

Q.1 Explain multicore and multiprocessor organization. **(10)**
Discuss the evolution of Operating System with neat diagram.

Q.2 Define Semaphores. **(10)**
What is the producer – consumer problem? Give an example of its occurrence in the Operating System.

OR

Q.2 Find out which algorithm among FCFS, SJF and Round Robin with quantum **(10)**
10, would give the minimum average waiting time for a given workload arriving at time zero in the order.

Job	Burst Time
1	10
2	29
3	3
4	7
5	12

Q.3 How deadlock and starvation differ from each other? **(10)**
Describe general strategies for dealing with deadlocks.

OR

Q.3 Consider a system with maximum resource instances for A=10, B=5, C=7 with **(10)**
allocation and maximum matrix is as follows:

Process	Allocation			Maximum		
	A	B	C	A	B	C
P_0	0	1	0	7	5	3
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

Check whether the system is deadlock free or not. Again check the **request$_1$** = **1 0 2 for P_1** is safe or not using RRA

(P.T.O.)

Q.4 Explain the following term: **(10)**
(i) Memory Management
(ii) Segmentation
What are the major activities of an Operating System with regards to memory management? Explain briefly.

OR

Q.4 Explain paging with suitable example for 64 bit architecture. **(10)**
Explain page replacement with suitable example.

Q.5 Explain I/O system interface with suitable example. **(10)**
Write a short note on programmed I/O with polling.

OR

Q.5 Write a short note on: **(10)**
(i) Direct Memory Access
(ii) Device Management
(iii) Buffering
(iv) Error Handling

Q.6 List the features of Android OS. Explain basic building blocks and services of **(10)**
Android Operating System.

OR

Q.6 Explain the concept of Virtualization. How does Xen Virtualization works? **(10)**
Explain with suitable diagram LINUX Multifunction Server.

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