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**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)**

**B.Tech.Sem - VI COMPUTER : WINTER- 2022**

**SUBJECT : OPERATING SYSTEM**

Day : Thursday

Time : 10:00 AM-01:00 PM

Date : 24-11-2022

**W-13657-2022**

Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figure to the right indicate **FULL** marks.
  - 3) Draw neat and labelled diagram **WHEREVER** necessary.
  - 4) Use of non – programmable **CALCULATOR** is allowed.
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**Q.1** Explain the monolithic and microkernel operating system structure with diagram. Discuss in brief the different services provided by operating system. **(10)**

**OR**

Compare multiprogramming and multitasking with suitable example. Explain how transition happens from user mode to kernel mode.

**Q.2** What is Semaphore? List and explain types of semaphore. Explain in detail Producer - Consumer problem. **(10)**

**OR**

State and explain the different characteristics of CPU scheduling algorithm and explain Shortest Job First and Shortest Remaining Time First CPU scheduling with example.

**Q.3** Explain in detail Banker's algorithm for deadlock avoidance with example. **(10)**

**OR**

Illustrate with suitable example the necessary conditions for the occurrence of deadlock. In what way resource allocation graphs are used for detection of deadlock.

**Q.4** Explain the term demand paging. Discuss and compare different page replacement algorithm. **(10)**

**OR**

Discuss internal fragmentation and external fragmentation with example. Explain any non – contiguous memory allocation.

**Q.5** A disk contains 200 tracks (0 – 199). Request queue contains track no. **(10)**  
82, 170, 43, 140, 24, 16, 190. Current position of R/W head = 50.  
Calculate total no. of track movement by R/W head using First Come First Serve.

**OR**

Discuss the various attributes of a file and explain various file allocation methods with suitable example.

**Q.6** Illustrate the procedure for setting the XEN on Linux operating system. **(10)**

**OR**

List the features and services of Android operating system.

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