BICS-037

DIPLOMA – VIEP – COMPUTER SCIENCE AND ENGINEERING (DCSVI)

Term-End Examination

June, 2016

00666

BICS-037 : OPERATING SYSTEM

Time : 2 hours   *Maximum Marks : 70*

Note : Attempt *five* questions in all. Question no. *1* is *compulsory*. Each question carries equal marks.

1. Choose the correct answer from the four given alternatives :   *7×2=14*

    (a) Most operating systems are comprised of three main components : the _____ , the file system and the shell.

    (i)   desktop

    (ii) kernel

    (iii) user interface

    (iv) code

(b) _____ refers to the ability of multiple processes (or threads) to share code, resources or data in such a way that only one process has access to shared object at a time.

(i) Synchronization

(ii) Mutual Exclusion

(iii) Deadlock

(iv) Starvation

(c) _____ problem occurs due to sharing of resources.

(i) Starvation

(ii) Deadlock

(iii) Both (i) and (ii)

(iv) None of the above

(d) The different types of tables maintained in an operating system are

(i) Memory, Logical, I/O, File

(ii) Memory, I/O, Physical, File

(iii) Memory, I/O, File, Process

(iv) Memory, Logical, I/O, Physical

(e) Direct method of Deadlock prevention is to prevent the occurrence of _____ .

(i) Mutual Exclusion

(ii) Hold and wait

(iii) Circular wait

(iv) No pre-emption

(f) _____ policy restricts scanning to one direction only.

    (i)   SCAN

    (ii) C-SCAN

    (iii) N-Step SCAN

    (iv) None of the above

(g) _____ is the time required to move the disk arm to the required track.

    (i)   Seek time

    (ii) Latency time

    (iii) Access time

    (iv) None of the above

2. (a) Draw the process state transition diagram. Explain each state identified in the diagram.   **7**

    (b) Compare and contrast SCAN and C-SCAN.   **7**

3. (a) What is the role of Kernel in an operating system ? Discuss the operations performed by kernel.   **7**

    (b) Write Banker's Algorithm for Deadlock detection.   **7**

4. Explain the following :   *7+7=14*

    (a) Batch Processing Environment

    (b) Time Sharing Environment

5. (a) List all the partitioning allocation strategies. Discuss any two of them. 7

(b) What is cryptography ? Discuss the mechanism of cryptography with the help of a suitable diagram. 7

6. Differentiate between the following (any *two*) : 7+7=14

(a) Pre-emptive and Non-Pre-emptive Scheduling

(b) Deadlock Avoidance and Deadlock Prevention Protocols

(c) SCAN and C-SCAN

7. (a) How are security and protection services managed by operating system ? Discuss in detail. 7

(b) Discuss Dekker's solution to Mutual exclusion problem. 7

8. Write short notes on any *two* of the following : 7+7=14

(a) Readers-Writers Problem

(b) Dining Philosophers Problem

(c) Producer-Consumer Problem

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