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BICS-037

DIPLOMA – VIEP – COMPUTER SCIENCE AND ENGINEERING (DCSVI)

00841

Term-End Examination

June, 2014

BICS-037 : OPERATING SYSTEM

Time : 2 hours *Maximum Marks : 70*

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

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

(a) A program in execution is called

(i) Process

(ii) Instruction

(iii) Procedure

(iv) Function

(b) The "turn-around" time of a user job is the

(i) Time since its submission to the time its result becomes available.

(ii) Time duration for which the CPU is allotted to the job.

(iii) Total time taken to execute the job.

(iv) None of the above

(c) Which of the following is ***not*** a fundamental process state ?

(i) Ready

(ii) Terminated

(iii) Executing

(iv) Blocked

(d) A critical section is a program segment

(i) which should run in a certain specified amount of time

(ii) which avoids deadlocks

(iii) where shared resources are accessed

(iv) None of the above

(e) Virtual Memory is

(i) Simple to implement

(ii) Used in all major commercial operating systems

(iii) Less efficient in utilization of memory

(iv) None of the above

(f) Shell is the exclusive feature of

(i) UNIX

(ii) DOS

(iii) System software

(iv) None of the above

(g) To avoid race condition, the maximum number of processes that may be simultaneously inside the critical section is

(i) Zero

(ii) One

(iii) Two

(iv) More than two

2. (a) Define operating system. Explain the characteristics of operating system. 7

(b) List and explain the different states of a process. Also draw the process state transition diagram. 7

3. (a) Explain system call and system program. Define Kernel and describe various operations performed by Kernel. 7

(b) What is cryptography ? Explain it types with the help of diagram. 7

4. Describe the following : $4 \times 3\frac{1}{2} = 14$

(i) Semaphores

(ii) Synchronization

(iii) Mutual Exclusion

(iv) Monitors

5. (a) Define deadlock. Explain the principles of deadlock. 7

(b) Write Banker's Algorithm for deadlock detection and protection. 7

6. (a) What is Scheduling ? Explain different types of scheduling. 7

(b) Compare and contrast Paging and Segmentation. 7

7. What is Virtual Memory ? Describe its working in detail. 14

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) RAID

(b) File directories

(c) Security threats for operating system

(d) Disk scheduling

(e) AWK Programming

(f) I/O Buffering