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BICS-037

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DIPLOMA (COMPUTER SCIENCE) (DCSVI)

Term-End Examination

December, 2013

BICS-037 : OPERATING SYSTEM

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt **any five** questions. Question No. **1** is **compulsory**. All question carry **equal** marks.*

1. Choose the correct answer. **7x2=14**

(a) A program in execution is called :

(i) Process.

(ii) Instruction.

(iii) Procedure.

(iv) Function.

(b) Interval between the time of submission and completion of the job is called :

(i) Waiting time.

(ii) Turnaround time.

(iii) Throughput

(iv) Response time.

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

(i) Ready

(ii) Terminated

(iii) Executing

(iv) Blocked

(d) A system program that set up an executable program in main memory ready for execution is called :

(i) Assembler

(ii) Linker

(iii) Loader

(iv) Compiler

(e) The FIFO algorithm executes first the job that first entered the Queue. (True/False)

(f) The LRU algorithm is used for pages that have been least used recently. (True/False)

(g) The Memory Allocation Scheme subject to external fragmentation swapping. (True/False)

2. (a) Explain various types of operating system. 7

(b) How security and protection services are managed by an operating system ? Explain in detail. 7

3. (a) What is threading ? What are the advantages of multithreading ? 7

(b) What is process ? Discuss the different states of a process. 7

4. Discuss various scheduling algorithms with the help of example. 14

5. (a) Discuss and explain the Dekker's solution of mutual exclusion problem. 7

(b) What is Semaphore ? Explain the properties of semaphore. 7

6. (a) Discuss monitors as a tool for interprocess synchronization. Also discuss the structure of a monitor. 7

(b) Discuss the swapping in memory management with the help of example. 7

7. (a) When does a page fault occur ? Describe the action taken by the operating system when page fault occurs. 7

(b) Discuss the security policies and security measures for an operating system. Explain various security models in detail. 7

8. Write short notes on **any four** of the following : **3.5x4=14**

(a) File directories.
(b) Disk Scheduling (FCFS, SCAN).
(c) Cryptography.
(d) Deadlock prevention and avoidance.
(e) Producer-consumer problem.
(f) I/O Buffering.