

**DIPLOMA - VIEP - COMPUTER SCIENCE AND
ENGINEERING (DCSVI)**

Term-End Examination

June, 2017

00014

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 given four alternatives : **7×2=14**

- (a) The problem(s) that occur(s) due to sharing of resources is/are
- (i) Starvation
 - (ii) Deadlock
 - (iii) Both (i) and (ii)
 - (iv) None of the above
- (b) The essential element/elements of a process is/are
- (i) Program code
 - (ii) Set of data
 - (iii) Both (i) and (ii)
 - (iv) None of the above

- (c) When the operating system creates a process at the explicit request of another process, it is known as
- (i) Process spawning
 - (ii) Swapping
 - (iii) Termination
 - (iv) None of the above
- (d) Multiprogramming is managed on a
- (i) Uniprocessor
 - (ii) Multiprocessor
 - (iii) Distributed processor
 - (iv) None of the above
- (e) Race condition occurs
- (i) when multiple processes or threads read and write data
 - (ii) when a single process is reading data
 - (iii) when multiple threads are reading data
 - (iv) None of the above
- (f) Binary semaphore takes
- (i) only the values of 0/1
 - (ii) only the values of 0 to 9
 - (iii) only the values of 0 to 16
 - (iv) None of the above

- (g) The main memory is partitioned into equal fixed size chunks called
- (i) Pages
 - (ii) Frames
 - (iii) Locations
 - (iv) None of the above
2. (a) Discuss the evolution of operating systems. 7
- (b) Explain about virtual machines. 7
3. (a) Briefly discuss about Process, Process Control Blocks and Process States. 7
- (b) What is the role of Kernel in an operating system ? Explain the operations performed by Kernel. 7
4. (a) What is meant by concurrency ? Discuss the design and management issues raised by the existence of concurrency. 7
- (b) Define deadlock. Discuss various prevention techniques of deadlock. 7
5. (a) Explain briefly the memory management requirements. 7
- (b) Differentiate between Fixed partitioning and Dynamic partitioning. 7

6. (a) Explain briefly the various techniques for performing I/O. 7
- (b) Explain Disk Scheduling policies. 7
7. (a) What is a file ? Explain file organization and file access briefly. 7
- (b) Discuss about RAID and RAID levels. 7
8. Write short notes on any *two* of the following : $2 \times 7 = 14$
- (a) Biometric Authentication
- (b) Shell Programming
- (c) Semaphores
-