

## BCA 2nd Semester Exam., 2018

## OPERATING SYSTEM AND UNIX

Time : 3 hours

Full Marks : 60

## Instructions :

- (i) All questions carry equal marks.
- (ii) There are **SEVEN** questions in this paper.
- (iii) Attempt **FIVE** questions in all.
- (iv) Question Nos. 1 and 2 are compulsory.

1. Answer any six questions as directed :

- (a) How do you find whether your system is 32-bit or 64-bit?
  - (b) Page stealing
    - (i) is a sign of an efficient system
    - (ii) is taking page frames from other working sets
    - (iii) should be the tuning goal
    - (iv) is taking larger disk spaces for pages paged out
    - (v) None of the above
- ( Choose the correct option )

( Turn Over )

- (c) The main reason to encrypt a file is to \_\_\_\_\_.  
( Fill in the blank )
  - (d) Before proceeding with its execution, each process must acquire all the resources : needs is called \_\_\_\_\_.  
( Fill in the blank )
  - (e) \_\_\_\_\_ is a technique of temporarily removing inactive programs from the memory of computer system.  
( Fill in the blank )
  - (f) What is race condition?
  - (g) How do you set environment variable which will be accessible from subshell?
  - (h) What is the command used to replace many characters in vi editor?
  - (i) What does SSTF stand for?
  - (j) The memory allocation scheme subject to 'external' fragmentation is
    - (i) segmentation
    - (ii) swapping
    - (iii) pure demand paging
    - (iv) multiple fixed contiguous partition
- ( Choose the correct option )

2. Answer any *three* questions in short :
- Give the difference between Multi-programming and Multiprocessing.
  - Differentiate between Preemptive and Non-preemptive scheduling.
  - Explain the file access modes in UNIX.
  - Describe three methods for passing parameters needed by system calls.
  - Describe the differences among short-term, medium-term and long-term scheduling.

3. List the steps needed to perform page replacement. Explain the different page replacement policies. Also list out the main requirements which should be satisfied by a page replacement policy.

4. What is meant by inter-process communication? Explain the two fundamental models of inter-process communication.

5. The Linux kernel does not allow paging out of kernel memory. What effect does this restriction have on the kernel's design? What are the two advantages and disadvantages of this design decision?

( Turn Over )

6. What is shell? Describe how many types of shell are used in UNIX.
7. Write short notes on any *three* of the following :
- Semaphore
  - Belady's anomaly
  - Translation Lookaside Buffer (TLB)
  - Different modes in vi editor
  - Garbage collection

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