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CS-63

BACHELOR OF COMPUTER APPLICATIONS (BCA) (Pre-Revised)

Term-End Examination

00063

December, 2018

CS-63 : INTRODUCTION TO SYSTEM SOFTWARE

Time : 2 hours *Maximum Marks : 60*

Note : *Question number **1** is **compulsory**. Attempt any **three** questions from the rest.*

1. (a) What are the essential conditions for a deadlock to occur ? Explain banker's algorithm for deadlock avoidance with the help of an example. *10*

(b) Explain the phases of a compiler, with suitable diagrams. Write a short note on a cross-compiler. *10*

(c) Explain the concept of virtual to physical mapping in a segmented system, with the help of an example. *6*

(d) Explain the components of a UNIX based GUI. Also explain the basic X-WINDOWS development environment. *4*

2. (a) Explain the SCAN and FCFS disk scheduling algorithms. Using suitable examples and diagrams, explain the working of both SCAN and FCFS algorithms and compare the results. 5

(b) Write a shell script to create a new file and copy the contents of another file to it. 5

3. (a) Explain compaction. Also explain the ways to perform compaction and compare them. 5

(b) Explain the method of address translation through associative memory, with the help of an example. 5

4. (a) Explain the following UNIX commands : $5 \times 1 = 5$

(i) % who -q

(ii) % grep

(iii) % pwd

(iv) % ls -x

(v) % split

(b) Explain the concept of semaphores. Provide a solution to the readers-writers problem using semaphores. 5

5. (a) Differentiate between the contiguous and non-contiguous disk allocation methods. *4*

(b) Write short notes on any ***three*** of the following : *3×2=6*

(i) LEX Compiler

(ii) Security and Protection in an OS

(iii) RAID and its Levels

(iv) Kernel I/O Subsystem