

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

Term-End Examination

00275

June, 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) Consider the following set of processes, with the length of the CPU burst time, given in milliseconds :

Process	Burst Time	Arrival Time
P1	1	0.0
P2	4	2.0
P3	1	4.0
P4	4	5.0

Calculate the Gantt Chart, Average Waiting Time and Turnaround Time for the following scheduling algorithms : 10

- (i) FCFS
(ii) SJF (Pre-emptive)

- (b) Explain the design and working of a 2-pass assembler. Why is a load-and-go assembler simpler in comparison to a one-pass assembler ? Explain. 10
- (c) Define mutual exclusion. How does a semaphore solve the problem of mutual exclusion ? Explain with an example. 10
2. (a) When does a page fault occur ? Describe the action taken by an operating system when a page fault occurs. 5
- (b) Explain the process of address translation by associative memory. Also give suitable diagrams. 5
3. (a) Explain the following UNIX commands : $5 \times 1 = 5$
- (i) passwd
 - (ii) mkdir
 - (iii) ls -l
 - (iv) comm
 - (v) split
- (b) Give the differences between the following types of operating systems : 5
- (i) Batch operating system
 - (ii) Time sharing operating system
 - (iii) Real time operating system

4. (a) Write Unix shell script to convert all lowercase characters to uppercase characters in a file. 5
- (b) Construct a parse tree for $a * b - c + d$. Also construct a context-free grammar for the given arithmetic expression. Also perform its semantic analysis. 5
5. (a) Explain the client-server model in a distributed system, with the help of a diagram. 4
- (b) Write short notes on the following : $2 \times 3 = 6$
- (i) Yacc Compiler
- (ii) Dynamic Loader and Dynamic Linker
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