June - July 2019

Bachelor of Computer Applications (BCA) Examination

Second Semester
BCA-205 : OPERATING SYSTEM FUNDAMENTALS

Time 3 Hours]

[Max. Marks 40
[Min. Marks 13

Note : Attempt any two parts from each questions. All question carry equal marks.

1. (a) What is Operating System ? Explain the services provided by it.
   (b) Define the essential properties of time sharing and multi programming system.
   (c) Explain in brief about system calls.

2. (a) What is a Process ? Digramatically discuss its states also.
   (b) For the following jobs, calculate average waiting time using (i) First Come First Served (ii) Round Robin ($q = 2$) :

Process	:	P_1	P_2	P_3	P_4	P_5
CPU Burst	:	18	2	4	2	8

   (c) Define the following terms : response time, system throughput and context switching.

3. (a) Define Inter Process Communication in brief.
   (b) Write short note on Critical Section and Semaphore.
   (c) Discuss the dinning philosopher problem and its solution using semaphore.

4. (a) What is a Deadlock ? What are its characteristics ?
   (b) Discuss in brief the different methods of handling deadlock.
   (c) Differentiate deadlock prevention and deadlock avoidance.

5. (a) Explain fragmentation and its types. How are they minimized in different memory management schemes ?
   (b) What is thrashing ? What are its causes ?
   (c) Consider the following page reference string 1, 2, 3, 4, 1, 2, 1, 5, 6, 2, 7, 1, 2, 3, 7, 6, 3. How many page faults would occur for LRU and optimal algorithm when the frames allocated are three initially all empty ?