GOVT DEGREE COLLEGE KISHTWAR

Semester-V (CBCS) EXAMINATION 2020-21 BA/BSc (Computer Applications)

Course Code: UCATE-501(DSE) Time : 3 hr Course Title: Fundamentals of Operating System Max Marks:80

Note : Attempt any Four questions. Each question carry equal marks.

Q1:- Do the following:

- a) Differentiate between Batch Operating System and Time shared Operating System.
- b) Compare between Windows and LINUX Operating System.

Q2:-Define Operating System. Discuss its evolution .Explain briefly architecture of an operating system.

Q3:- Do the following:

- a) Define deadlock and state the necessary conditions for deadlock.
- b) A system has 4 processes and 5 allocatable resources. The current allocation and maximum needs are as follows-

	Allocated					Maximum				
Α	1	0	2	1	1	1	1	2	1	3
В	2	0	1	1	0	2	2	2	1	0
С	1	1	0	1	1	2	1	3	1	1
D	1	1	1	1	0	1	1	2	2	0

If Available = [00X11], Using Banker Algorithm what is the smallest value of x for

which this is a safe state?

Q4:- Explain following terms :

- a) Memory Compaction
- b) Swapping.
- c) Demand Paging
- d) Belady 's Anomaly
- e) Internal Fragmentation

Process Id	Arrival time	Burst time
P1	3	1
P2	1	4
P3	4	2
P4	0	6
Р5	2	3

Q5:- Consider the set of 5 processes whose arrival time and burst time are given below-

Calculate the average waiting time and average turn-around time using

- a) Shortest Remaining Time Next (SRTN) scheduling
- b) Round Robin Scheduling with time quantum=2
- **Q6:-** Given a page reference string (arrival) with four page frames, calculate the number of page faults with FIFO and LRU page replacement algorithms respectively :

1,2, 3, 4, 5, 1, 2, 5, 1, 2, 3, 4, 5, 1,6,7,8,7,8,9,7,8,9,5,4,4,5,4,2

Q7:- Describe contiguous memory allocation done by Operating System with help of suitable example. Describe Best Fit, First Fit and Worst Fit methods for allocating holes to processes giving examples.

Q8:- Give the syntax and use of following commands :

- (a) cp
- (b) who
- (c) cal
- (d) kill
- (e) grep