University of Sargodha

BS 5th Term Examination 2017.

Subject: I. T **Paper: Operating System (CMP: 3621)**

Time Allowed: 2:30 Hours **Maximum Marks: 80**

Objective Part Compulsory

Q.NO.1:-Answer the following questions in 2-3 lines having 2 marks each [12x2=24]

1. What is multiprogramming
2. What are the four condition of deadlock?
3. Explain long term scheduler
4. Under what circumstances do page faults occur?
5. What is Memory-Management Unit
6. Different types of Real-Time Scheduling?
7. What is Dispatcher?
8. What is virtual memory?
9. What is a deadlock?
10. What are types of threads?
11. What is a ready queue?
12. What is PCB?

Subjective Part

Note: Attempt any three Questions. All carry equal marks [12x3=36]

Q.No2 a) Briefly explain the operating system services

b) Describe the Simple Batch System and Time sharing system

Q.No3 a) Define System Calls. What are the main types of System calls?

b) What are differences between user-level threads and kernel-level threads?

Q.No4 Suppose that a disk drive has 200 cylinders, numbered from 0 to 199. The disk head is initially at cylinder 53. The queue of pending requests, in FIFO order, is : 98, 183, 37, 122, 14, 124, 65, 67 Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms?

a) FCFS b) SSTF

c) Scan d) C-Scan

Q.No5 a) what is semaphore. How semaphore works for synchronizations of the processes?

b) Briefly explain the segmentation.

Q.No6 Consider the following set of processes, with the length of the CPU burst given in milliseconds:

Process	Burst Time	Priority
P1	10	4
P2	7	1
P3	2	5
P4	1	3
P5	4	2

The Process are assumed to arrive in the order P1,P2,p3,p4,p5 all at time 0.

a) Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum= 2).

b) Obtain the average waiting time.