University of Sargodha

BS 4th Term Examination 2014.

Subject: I. T Paper: Operating System (CMP-320)

Time Allowed: 2:30 Hours **Session: 2012-16** **Maximum Marks: 60**

Objective Part Compulsory

Q. No. 1:- Attempt all hort questions each requiring answer in 2 - 3 lines only having 2 marks each. [24 Marks]

1- What is the purpose of system calls?
2- What are threads?
3- What is a PCB?
4- List down the process states?
5- What does "preemptive" mean?
6- What is safe state?
7- What is semaphore?
8- What is deadlock?
9- What is mutual exclusion condition?
10- What is swapping?
11- What is paging?
12- What causes page fault?

Subjective Part

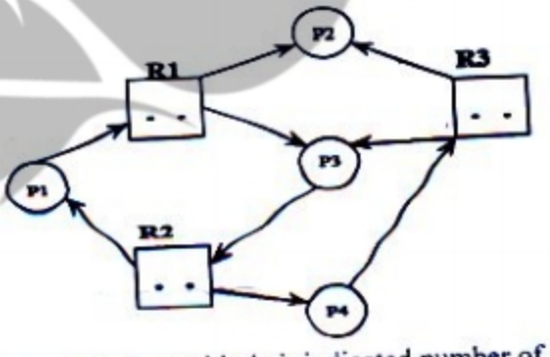
Note: Attempt any three questions. [12 x 3 =36]

Q.No.2:- a) Explain operating system components. Also write down the role of operating system.
b) Explain operating-system services

Q.No.3:- Compare paging with segmentation with respect to the amount of memory required by the address translation structures in order to convert virtual addresses to physical addresses.

Q.No.4:- What could be the possible conditions, which can ensure that a deadlock will not occur? Explain.

Q.No.5:- Given the following resource-allocation diagram,
(i) Draw the wait-for graph.
(ii) Determine whether or not there is a deadlock.
If yes, justify clearly indicating the reason. If no, explain why there is no deadlock



Q.No.6:-Given the five processes below with their indicated number of run time units, answer the questions

PROCESS ID	CPU REQUIRMENTS
P1	10
P2	5
P3	4
P4	1
P5	7
P6	8

Indicate the wait time for these processes under round-robin scheduling (quantum = 2).