CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
FACULTY OF TECHNOLOGY & ENGINEERING
Computer Engineering/Computer Science and Engineering

Subject: Operating System **Subject Code: CE248**

Date: 15-06-2020 **Time: 11:30- to 01:00** **Marks:30**

Instructions: Section-II contains descriptive questions of 30 marks.
For section-II→Time -1 hour 30 minutes
Answers Should be written in notebook.
On each page Id Number should be written.
Write page number on each page.
There should be only a single file of descriptive answers and upload in classroom.
File should be saved as e.g. 18DCS001.pdf.
Upload the file within 10 minutes after the completion of exam.

1 Consider the following set of processes with CPU burst time. 7

Process	Burst Time	Priority	Arrival Time
P0	10	3	0
P1	13	1	1
P2	3	3	2
P3	8	4	3

Calculate mean turnaround time and average waiting time for following scheduling algorithm. Consider smallest number as highest priority

1. SRTF
2. Priority scheduling preemptive approach.

OR

1 Consider the following five processes with the length of the CPU burst time in milliseconds. 7

Process	Burst Time	Arrival Time
P0	10	3

P1	1	1
P2	2	3
P3	1	4
P4	5	2

For the above set of processes find the average waiting time and average around time for each of the following scheduling algorithm using Gantt chart.

1. SJF
2. RR (Q = 2)

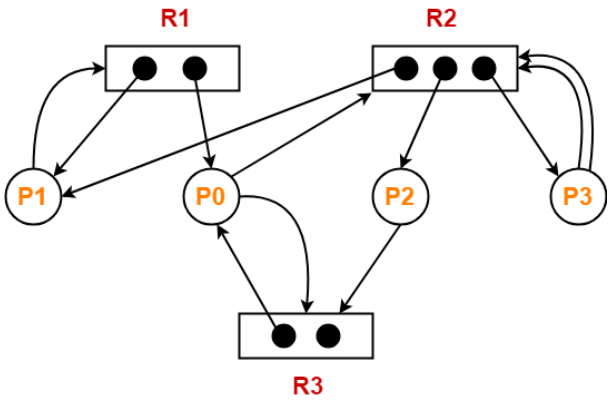
2 Memory partitions of 100kb,500 kb,200 kb,300kb,600 kb are available of fixed length. How would best, first fit algorithm will place processes P1, P2, P3 and P4 having 212,417,112,426 requirements respectively. Calculate the total internal fragmentation for both algorithms. Which is the best algorithm? 4

3 Consider the reference stream 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults will be there using FCFS and Optimal Page replacement algorithm using 3 frames? 6

OR

3 Consider the reference stream 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults will be there using LRU and Second Chance algorithm using 3 frames? 6

4 For the figure given below, discuss whether the system will be in safe state or not? If system is in safe state, find the safe sequence/sequences. 7



5 The queue of requests in FIFO is 86,147,91,177,150,102,175,130 What is the total head movement needed to satisfy the requests for the following Scheduling algorithms LOOK, C-SCAN. Currently head is at 6

94. Previously the head was at 100