Subject: Operating System

Time: 1.5hr

Full marks: 30

Pass marks: 12

Attempt all questions.

1) Explain the difference between external and internal fragmentation. How do you overcome the fragmentation problem in contiguous memory allocation? [5]

2) Explain the Linked list method of File allocation. Explain the advantage and disadvantage using File allocation Table with linked list. [5]

3)  What is thrashing?  What is the reason for it? Consider the following page reference string: - 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

How many page faults would occur for the following page replacement algorithms, assuming 3 frames: -i) FIFO ii) Optimal iii) LRU [10]

4)  Consider a disk queue with requests for I/O to blocks on cylinders 98, 183, 41, 122, 14, 124, 65, 67. The FCFS scheduling algorithm is used. The cylinders are numbered from 0 to 199. The head is initially at cylinder number 53 moving towards larger cylinder numbers on its servicing pass. Find total head movement (in a number of cylinders) incurred while servicing these requests for the following algorithms  [5]

i)          SCAN

ii)        C-LOOK

5) Explain the method for free block management using Bitmap and Linked list. [5]