d) Given references to the following pages by a program.

0, 9, 0, 1, 8, 1, 8, 7, 8, 7, 1, 2, 8, 2, 7

How many page fault occur if the program has three page frames availables to it and uses

i) FIFO ii) LRU

OR

Assume the amount of memory on a system is inversely proportional to the page fault rate. Each time memory doubles, the page fault rate is reduced by a third. Currently the system has 32 Mb of memory. The page fault rate is 2%. When a page fault is required, the access time is 500ns. Overall the effective access time is 300 MS. If memory was increased to 128 Mb, what would be the overall access time?

Unit - V

5. a) Give an example of a situation where variable size record would be useful.

b) What is File Protection?

c) What are the operation of file system?

d) Explain file allocation method.

OR

Explain disk scheduling. Describe FCFS and look method.

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Roll No .....

IT-504

B.E. V Semester

Examination, December 2015

System Programming and Operating System

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit – I

1. a) Write the problem faced by one-pass assembler?

b) Define macros with example.

c) Write the function of Linker.

d) What is multi programming? Write the advantages and disadvantages of multi programming.

OR

How deadlock is occur in multi programming environment? Explain.

Unit – II

2. a) What do you understand by mutual exclusion?

   b) What is bounded buffer?

   c) What is starvation? How it is handled?

   d) Assume that you have following jobs to execute with one processor.

Job	Arrival Time	Burst Time
1	2	5
2	3	6
3	1	3
4	4	2
5	5	7

   i) Give Gantt chart the execution of these jobs using FCFS and SJF.

   ii) Calculate turn arround time, waitting time of the above scheduling.

OR

Discuss classical problem of synchronization.

Unit – III

3. a) List any two example of deadlocks that are related to a computer environment.

   b) It is possible to have a deadlock involving only one single process?

   c) Explain paging with example.

   d) Consider the following snapshot of a system :

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D				
P_0	0	0	1	2	0	0	1	2	1	5	2	0
P_1	1	0	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	0	0	1	4	0	6	5	6				

Answer the following question.

   i) What is the content of the array need?

   ii) Is the system in a safe state

OR

On a simple paging system with 2^{24} bytes of physical memory, 256 pages of logical address space and a page size of 2^{10} bytes.

   i) How many bytes are in a page frame?

   ii) How many bits in the physical address?

   iii) How many entries are in the page table?

Unit - IV

4. a) Explain the concept of demand paging?

   b) Explain Thrashing.

   c) Explain the concept of lazy swapper.