Roll No ....

IT - 504

B.E. V Semester

Examination, December 2012

System Programming and Operating System

Time : Three Hours

Maximum Marks : 70/100

Note : 1. Attempt one question from each unit.

Unit - I

1. a) Explain the following:

   i)   Linkers

   ii) Compiler

   iii) Assembler

   b) Distinguish between system software and Application Software.

2. a) Explain language processor development tools briefly.

   b) Compare the features of various types of operating system.

Unit - II

3. Explain the differences in the degree to which the following scheduling algorithms discriminate in favor of short processes:

   i) FCFS

ii) RR

iii) Multilevel feedback queues

4. a) Explain the structure of process Control Block. How processes an created and destroyed and change their states.

b) Discuss the difference between short term, long term and medium term schedulers.

Unit - III

5. Consider the following snapshot of a system:

	Allocation				Max				Available			
	A	B	C	D	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				

i) What is the content of the matrix need

ii) Is the system in a safe state.

iii) If a request from process P_1 arrives from (0, 4, 2, 0) can the request be granted immediately.

Answer the above questions using Banker's algorithm.

6. a) Explain segmentation with paging giving the description about hardware requirements for its implementation.

b) What is deadlock detection and recovery strategy? Describe deadlock detection algorithm in detail.

Unit - IV

7. Consider the following page reference string:

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.

How many page faults would occur for the replacement algorithm:

   i) LRU

   ii) FIFO

   iii) Optimal replacement

8. a) What do you mean by page fault in demand paging? What is the procedure for handling this page fault?

   b) Explain system protection and password management.

Unit - V

9. a) What are the advantages of the variant of linked allocation that uses a FAT to chain together the blocks of a file.

   b) Compare look and scan disk scheduling algorithm.

10. a) Describe the selection criteria of a disk scheduling algorithm.

   b) Explain the file management schemes of LINUX operating system.

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