Hall Ticket Number:												
					-							

Code No.: 213

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERAB'AD M.C.A. II Year I-Semester (Main) Examinations, January - 2016

Operating Systems

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE questions from Part-B

Part-A $(10 \times 2 = 20 \text{ Marks})$

- 1. Describe about file management system calls.
- 2. What is a process? Write in detail about process structure.
- 3. Describe the solution to the dynamic storage allocation problem.
- 4. Explain basic method of paging and structure of page table.
- 5. Explain the conditions of a critical section.
- 6. Describe about resource allocation graph.
- 7. Explain application I/O interface.
- 8. Explain the steps to perform DMA transfer.
- 9. Draw and explain the architecture of Windows XP.
- 10. Describe about the kernel modules in Linux system.

Part-B $(5 \times 10 = 50 \text{ Marks})$

11. a) Describe the structure of OS.

[4]

b) Assume that the following jobs are to be executed on a single processor system

[6]

job-id	CPU burst time				
P	4				
Q	1				
R	8				
S	1				
T	2				

The jobs are assumed to have arrived at time 0. Calculate Turn Around Time and Waiting Time for SJF and Round Robbin with time slice 1.

- 12. a) Describe how to implement file system and explain the structure of file system.
 - b) Suppose there are 16 virtual pages and 4 page frames. Determine the number of page [6] faults that will occur with reference string 1 2 3 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 6 If the page frames are initially empty, using LRU and FIFO page replacement algorithm and determine page faults.
- 13. a) Identify the purpose of a semaphore and explain its operations.

[4]

[4]

b) Explain how to prevent a dead lock.

[6]

14.	a) Explain the RAID structure in detail.	[6]			
	b) Disk requests are received by a disk drive for cylinders 5, 25, 18, 3, 39, 8 and 35 in that order. Assume that the arm is at cylinder 20. Draw the graph and find Total seek time for FCFS, SSTF Disk scheduling.	[4]			
15.	a) Explain about the Networking in Windows XP.	[5]			
	b) Discuss the design principles of LINUX.	[5]			
16.	 a) Define Medium term Scheduler, Turn Around Time, Context Switch and Throughput, Starvation. 				
	b) Explain Contiguous memory allocation in detail.				
17.	Write short notes on any <i>two</i> of the following:				
	a) Access Matrix in Protection.	[5]			
	b) Characteristics of I/O devices.	[5]			
	Compare and contrast the features of Linux and Windows XP.	[5]			