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Code No. : 213

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**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 × 2 = 20 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 × 10 = 50 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. [4]  
b) Suppose there are 16 virtual pages and 4 page frames. Determine the number of page 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. [6]
13. a) Identify the purpose of a semaphore and explain its operations. [4]  
b) Explain how to prevent a dead lock. [6]

*Contd... 2*

