Hall Ticket Number:

Code No.: 32005 AS

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

M.C.A. II-Semester (CBCS) Advanced Supplementary Examinations, August-2017

Operating Systems

Time: **3** hours Max. Marks: **70**

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

Part-A (10 × 2 = 20 Marks)

1. What is an Operating System? What are the goals of operating system?
2. List any four process related system calls.
3. Define thrashing. Give the reasons of thrashing.
4. What is a file system?
5. A counting semaphore was initialized to 10. Then 6P (wait) operations and 4V (signal) operations were completed on this semaphore. What is the resulting value of the semaphore?
6. List any two factors that affect the process termination to recover from a deadlock.
7. Differentiate between logical formatting and physical formatting.
8. Distinguish between block special and character special I/O. Give one example for each type.
9. In what circumstances is the system call sequence *fork(), exec()* most appropriate? When is *vfork()* preferable?
10. In Windows XP what is the job of object manager?

Part-B (5 × 10 = 50 Marks)

11. a) Explain the criteria used for evaluating scheduling algorithms. [4]
    b) Discuss about any two CPU scheduling algorithms with a suitable example. [6]
12. a) State the advantages and drawbacks of various file allocation methods. [4]
    b) Under what circumstances do page fault occurs? Describe the actions taken by the operating system when a page fault occurs. [6]
13. a) Describe the solution of Dining-Philosophers problem using monitors. [6]
    b) Briefly discuss about the deadlock handling methods. [4]
14. a) Suppose that a disk drive has 5,000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order is: 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for the scheduling algorithms: FCFS, SCAN, CLOOK. [6]
    b) What are the various kinds of performance overhead associated with servicing an interrupt? [4]
15. a) Discuss about the Linux memory management. [4]
    b) List and briefly explain about the components of Windows XP. [6]
16. a) List and explain different states of a process. [4]
    b) Discuss about the techniques used for page tables. [6]
17. Write short notes on any ***two*** of the following:
    a) Semaphores [5]
    b) Physical characteristics of I/O devices. [5]
    c) Linux IPC. [5]