

R16

Code No: 135CV

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech III Year I Semester Examinations, November/December - 2018****OPERATING SYSTEMS****(Common to CE, EEE, ME, ECE)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A**(25 Marks)**

- 1.a) Define a system call and mention how it differs from a standard library function. [2]
- b) State the goals and functions of an operating system. [3]
- c) Describe the context switching. [2]
- d) Define various system calls for process management. [3]
- e) Write about IA-32 segmentation. [2]
- f) Distinguish between paging and segmentation. [3]
- g) Write about disk attachment. [2]
- h) Discuss the drawbacks of contiguous allocation of disk space. [3]
- i) Explain safe state and unsafe state. [2]
- j) How to recover from deadlocks? Explain briefly. [3]

PART - B**(50 Marks)**

- 2.a) Describe the system components of an operating system and explain them briefly.
- b) Describe the operating system structure. [5+5]

OR

- 3.a) Explain how operating system services are provided by system calls?
- b) State the major activities of an operating system with regard to memory management. [5+5]

- 4.a) Define semaphore. Explain the method of using semaphore for Process synchronization.

- b) Discuss about following:
 - i) Process scheduling
 - ii) Inter process communication. [5+5]

OR

5. Discuss about following.
 - a) Synchronization in Linux and Windows
 - b) Thread scheduling
 - c) Monitors. [10]

- 6.a) Explain about contiguous memory allocation.
b) Define thrashing. Explain available methods to avoid thrashing. [5+5]

OR

- 7.a) State and explain about virtual memory concept with neat diagram.
b) Explain briefly the performance of demand paging with necessary examples. [5+5]

8. Explain in detail about various disk scheduling algorithms. [10]

OR

- 9.a) Discuss about disk space management.
b) Define file. Explain the operations that can be performed on a file. [5+5]

10. Explain the following:
a) Access Matrix Implementation
b) Goals and principles of protection. [5+5]

OR

- 11.a) Explain Banker's algorithm for deadlock avoidance with an example.
b) Define deadlock? What are the four conditions necessary for a deadlock situation to arise? How it can be prevented? [5+5]

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