

Code No: 56024

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech III Year II Semester Examinations, December-2014/January-2015
OPERATING SYSTEMS
(Common to ECE, ETM)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Explain the objectives and functions of operating systems.
- b) Describe the features of batch and timesharing systems.
2. With an example explain FCFS, SJF and RR CPU scheduling algorithms.
3. Write programs for hardware support for mutual exclusion using:
 - a) Test and set instruction.
 - b) Exchange instruction.
- 4.a) Differentiate between internal and external fragmentation.
- b) In a fixed-partitioning scheme, what are the advantages of using unequal-size partitions?
- 5.a) A system has 3 devices D1, D2 and D3. It has 3 processes P1, P2 and P3. P1 is holding D1 and waiting for D3. P2 is holding D2 and waiting for D1. P3 is holding D3 and waiting for D2. Draw resource allocation graph and wait-for graph. Is the system in deadlock state or not? Explain.
- b) Write the resource allocation algorithm for Deadlock detection? Explain with an example.
- 6.a) Discuss the objectives of file management systems.
- b) Differentiate between sequential and random file access methods.
7. Suppose that a disk drive has 2000 cylinders, numbered 0 to 1999. The drive is currently serving a request at cylinder 54. The queue of pending requests in order is 1029, 105, 1955, 820, 394, 555, 1370, 1095, 125. 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 following disk scheduling algorithms?
 - a) FCFS
 - b) SSTF
 - c) SCAN
 - d) C-LOOK.
- 8.a) Explain the security threats to various computer system assets.
- b) Describe capability based systems.

---ooOoo---