

Question Paper

Exam Date & Time: 29-Nov-2018 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - ME (INTERNET OF THINGS)

Operating Systems for IoT [IOT 603]

Marks: 100

Duration: 180 mins.

END SEMESTER DEGREE EXAMINATION NOVEMBER 2018

Answer all the questions.

- 1) Distinguish between Time-sharing system and Real Time systems. (10 marks) (10)
- 2) Describe the term Context Switch with a Diagram illustrating the same. (10 marks) (10)
- 3) How can multitasking improve the efficiency of a system? Give an example which demonstrate that multitasking increases the efficiency of the CPU. (10 marks) (10)
- 4) What do you understand by message passing? Explain this scheme under (i) direct communication (ii) indirect communication. (10 marks) (10)
- 5) Describe the implementation of Wait and signal using monitors. (10 marks) (10)
- 6) Describe the banker's algorithm for detection and recovery. Illustrate it with an example. (10 marks) (10)
- 7) Discuss the following with an adequate example each. (10 marks) (10)
 - a. First come First Served based page replacement policy
 - b. Least Recently used page replacement policy
 - c. Optimal page replacement policy
- 8) Consider 2 processes P1 and P2. The periods for P1 and P2 are 50 and 100 respectively. And their processing times are 20 and 35 respectively. (10)

Is it possible to schedule these tasks based on CPU utilization test? (5 marks)

Draw the Gantt chart which depicts the Rate Monotonic

scheduling for the above 2 processes. Do the processes meet their deadlines? (5 marks)

- 9) Comment of the appropriate usage of Utilization Based - Test for analyzing the scheduling of a set of real time processes? (10 marks) (10)
- 10) Compare the various disk scheduling algorithms. (10 marks) (10)

-----End-----