Tribhuvan University

Institute of Science and Technology

Bachelor of Computer Science and Information Technology (BSc. CSIT)

Semester: Sixth

Course: Real Time Systems

Course No.: CSC-354

Model Question

Full Marks: 80 **Pass Marks: 32**

Long Answer Questions

Attempt any two questions. [2x12=24]

1. What do you understand by Priority driven algorithms? State and prove the optimal Earliest Deadline First (EDF) Theorem.
2. What do you understand by slack stealing in dead line driven systems? Explain the operation of a slack stealing with a suitable example.
3. What is multiprocessor priority ceiling protocol? Describe it with the help of suitable diagrams.

Short answer questions

Attempt any eight questions. [8x7=56]

1. Define wormhole networks used for communication in multiprocessor systems. Describe routing and transmission mechanism in a wormhole networks.
2. Describe the terms tracking and gating used in a radar signal processing system.
3. Differentiate between hard real time systems and soft real time systems. Give three examples of each.
4. Define temporal parameter of real time workload? Explain different types of temporal parameters of a job.
5. How does the system handle frame overruns in a clock-driven scheduling? Explain.
6. What do you understand by 'Busy Intervals' in fixed priority tasks with arbitrary response times? Explain.
7. What are the objectives and levels of two level schemes for integrated scheduling?
8. Explain 'Priority Inversion' caused by resource contention, with suitable example.
9. Describe a real-time communication model with the help of suitable diagram.
10. Write sort notes on
    a. Identical versus heterogeneous processors
    b. Fixed priority versus dynamic priority algorithms