Tribhuvan University
Institute of Science and Technology

2068(I)

Bachelor Level/ First Year/ First Semester/ Science   Full Marks: 80

Computer Science and Information Technology   (CSc. 354)   Pass Marks: 32

(Real Time System)

Candidates are required to give their answers in their own words as for as practicable.
The figures in the margin indicate full marks.

Group A

Attempt any two questions: **(2 x 12=24)**

1. Explain the various components of a real time system with suitable block diagram. State and prove the optimal Earliest-Deadline-First (EDF) algorithm.
2. Explain the multiprocessor priority ceiling protocol with suitable example.
3. Explain the Stack Stealing in deadline-driven system with suitable example

Group B

Attempt any Eight Questions: **(8 x 7=56)**

4. Explain the real-time command and control system with suitable example.
5. What is hard real time system? Explain with example.
6. Differentiate between data dependency and temporal dependency.
7. State and prove the Optimal Least-Stack-time-first (LST) algorithm.
8. Define the clock-driven scheduling. What are the advantages and disadvantages of it?
9. Differentiate between fixed-priority algorithm and dynamic-priority algorithm.
10. Explain the sporadic server in fixed-priority systems with example.
11. What is rate monotonic algorithm? Explain with suitable example.
12. Explain the priority based service disciplines for switched networks.
13. Write shorts notes on:
    a. Scheduling hierarchy
    b. Communication in multicomputer system.