Tribhuvan University
Institute of Science and Technology

2073

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. What do you understand by basic priority inheritance protocol? Explain it with the help of suitable example.
2. What do you understand by digital control? Prove that earliest deadline algorithm is not optimal for scheduling preemptable jobs on more than one processor.
3. What is multi-processor priority ceiling protocol? Describe it with help of suitable diagram.

Group B

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

1. Define wormhole network. Describe routing and tramsmission mechanism in a wormhole network.
2. Describe the term tracking and grating used in a radar signal processing system.
3. Difference between hard real time system and soft real time systems. Give three example of each.
4. Describe the operation of total bandwidth server in brief.
5. Differentiate between online and off-line scheduling.
6. What do you understand by 'Greedy Weighted Round Robin scheduling' in a packet switching network? Explain in detail.
7. Prove that the longest blocking time suffered by every job is the same for the stack based basic priority ceiling protocols?
8. Explain ‘Priority Inversion’ caused by resource contention, with suitable examples.
9. Why real time data cannot use TCP protocol? Give reasons.

10. Write short notes on:
    a) Identical Vs Heterogeneous processes.
    b) Real Time Protocol (RTP)