TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Chaitra

Exam.	Regular / Back		
Level	BE	Full Marks	80
Programme	BEL, BEX, BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Instrumentation II *(EX 602)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. a) Define closed loop MBI system with suitable example. [2]

   b) Among full or partial address decoding, which method of address decoding do you choose while interfacing memory device? Give reasons with suitable example. [4]

2. Interface a parallel bus centronics printer with 8085 microprocessor using 8255A in mode 1 output configuration.

   a) Draw the necessary interfacing circuit required for this purpose using 8255 PPI in handshake mode. [3]
   b) Determine port address as per your chip select logic. [2]
   c) Determine the control word required for printing operation. [2]
   d) Draw the timing waveform for transferring data to the printer. [2]
   e) Write an ALP to print characters whose ASCII code is available in memory location from 9000H. [3]

3. a) Explain the transferring of serial data using asynchronous transfer. One character is formed with 7-bit ASCII code, 1-bit start, 2-bit stop and 1-bit parity. [4]

   b) Describe up to date USB standards. Differentiate different USB data transfer mechanisms with suitable example of each. [6]

4. a) Explain the interfacing technique of 12-bit DAC to 8-bit Data bus. [6]

   b) Explain different types of errors in ADC & DAC. [4]

5. Explain Bluetooth network topology in detail. Why optical fiber has high demand in the field of communication. [4+2]

6. Explain different types of Energy coupling mechanisms with suitable example of each. How can a circuit be protected from ESD? [6]

7. What do you mean by reliability in a circuit design? Discuss how the reliablity can be achieved by incorporating fault tolerance. [6]

8. a) What is PCB? Write down the advantages of PCB. [1+2]

   b) How do you reduce cross talk when routing signal traces on a PCB? [3]

9. Define roll back recovery with suitable example. Explain the spiral model software development cycle. [2+4]

10. Explain your industrial visit carried out on your case study in terms of existing system circumstances, problem identification and analysis, recommendation plan, requirement and feasibility analysis of the recommended plan and rollback plan if necessary. Also list out the different advantages of the proposed plan in terms of technology, production rate, quality assurance, cost-benefit and return on investment (ROI) for the particular industry. [12]

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