MAXIMUM MARKS: 80	**WEIGHTAGE: 40%**
DATE: 14/06/12	**DURATION: 180 MINUTES**

1.(i) Explain the working of Fibre optic pressure transducers with neat sketch. Draw the response curve for the function of stress load. **[5marks]**

(ii) Draw the diagram of a conductive transducer for measuring liquid levels for conductive liquids. **[2marks]**

2. Draw and explain the position algorithm flow chart and derive the relationship between position and velocity algorithm. **[7marks]**

3. (i) Explain the Register insertion method with neat sketch. **[5marks]**
   (ii) Draw the behavior of different feedback control actions for P, PI and PID. **[2 marks]**

4. (i) Explain the design of Leeds and Northup Max-1 system with neat sketch. **[5marks]**
   (ii) Draw the operational diagram of automatic optical pyrometer. **[2marks]**

5. Explain the operations of semaphore with suitable real time programming example. **[7marks]**

6. (i) Explain the adaptive control system with neat suitable block diagram. List two main classifications of adaptive control. **[5marks]**
   (ii) List out the main components of the fuzzy controller **[2marks]**

7. Explain the modeling aspects of kiln automation system in a cement plant. **[7marks]**

MAXIMUM MARKS: 20   **WEIGHTAGE: 20%**
DATE: 24/4/12   **DURATION: 50 MINUTES**

1. Design a microcontroller for blinking LED's in the reverse order in the output port 1 (7th bit to 0th bit). Use C/Assembly program.   **[5marks]**

2. Design a micro controller for generating square wave for every TON – 40 m sec seconds & TOFF for 30 m seconds using C program. Use Timer 0 to generate the square wave form and receive the output at port P1.1. **[5marks]**

3. (a) Using timers design a PLC for rectangular wave generator for every TON - 10 seconds & TOFF for 2 seconds. Draw the ladder diagram or write the PLC program.   **[3marks]**

   (b) Explain, how position algorithm and velocity algorithm responds to shut down or failure condition.   **[2marks]**

4. (a) Draw the ladder diagram for the XOR gate connected with lighting load. Use Input switches as A & B (NO or NC). **[3marks]**
   (b) Write down the steps involved in code fusion procedure of a micro controller. **[2 marks]**

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TEST 1(CLOSED BOOK)

MAXIMUM MARKS: 25
DATE: 06/03/12

WEIGHTAGE: 25%
DURATION: 50 MINUTES

1. Explain PI controllers function with neat behavioral graph.
   [5 marks]

2. Explain the basic principle and working of Fibre optic displacement transducers with neat sketch. Draw response graph.
   [5 marks]

3. (i) Explain the about backward chaining expert system.   **[3 marks]**
   (ii)Draw the total plant hierarchical control system with various levels.
   [2marks]

4. Explain the working principle of vortex shedder with neat sketch.   **[5 marks]**

5. (i) Explain Piezoelectric Bio Sensor.   **[2 marks]**
   (ii) Explain feed forward control with neat sketch.   **[3 marks]**

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Quiz 2 (CLOSED BOOK)

MAXIMUM MARKS: 14   **WEIGHTAGE: 7%**
DATE: 23/05/12   **DURATION: 20 MINUTES**

1.   Compressed   oil   is   used   for   _____   control.
[1 mark]

2. Name two types of **scanning** used in CRT applications.   [2 mark]

3. List three types of Ball valves   [1 mark]

4. List out at least 4 main requirements for maintenance engineer in DCS.
[2 marks]

5. Name the DCS system used for frequent data communications.   [1 mark]

6. Define HTD in Honey well TDC 2000 system architecture   [1 mark]

7. List at least four qualitative parameters of display systems in control systems. [2 marks]

8. _____ cylinder is capable of performing operating motion in both possible directions. [1 mark]

9. List the various video screen selections through keyboard in Leeds & Northup DCS system. [1 mark]

10. Draw the diagram of Reed Relay and explain the working of it. [2marks]

MAXIMUM MARKS: 16   **WEIGHTAGE: 8%**
DATE: 25/03/12   **DURATION: 20 MINUTES**

1. Write the name with expansion of Load store architecture processors. [1 mark]

2. List basic functions of SCADA   [1 mark]

3. Explain in short about bit slice processor   [2 mark]

4. List the advantages of Intel i860 processor over other processors   [2 marks]

5. List the modes of RTU.   [1mark]

6. Draw the diagram for Contention bus LAN connection.   [2 mark]

7. Compare Harvard architecture with VonNeumen Architecture [1 mark]

8. Define DMA in micro processors.   [1 mark]

9. Define instruction pipelining [1 mark]

10. Write down the non functional requirements of an embedded control system [2 marks]

11. Write the difference between micro processor and micro controller. [1mark]

12. List the types of embedded control systems?   [1 mark]