

SL - 1007

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Seat No.	
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B.E. (Mechanical) (Semester - VIII) Examination, April - 2017
MACHATRONICS (Revised)

Sub. Code : 68508

Day and Date : Tuesday, 25 - 04 - 2017

Total Marks : 100

Time : 02.00 p.m. to 05.00 p.m.

- Instructions :**
- 1) All questions are compulsory.
 - 2) Answer to all questions must be written in one answer book.
 - 3) Figure to the right indicate full marks.
 - 4) Assume any data if necessary and state it clearly.
 - 5) Use of any type of calculator is not permitted.

Q1) Solve any two of the following.

- a) Suggest a suitable sensor for sensing following quantities; also state the transduction principle of sensor suggested by you. [8]
 - i) Force
 - ii) Temperature
 - iii) Displacement
 - iv) Sound
- b) With the help of neat sketch and suitable example, explain tactile sensors. [8]
- c) What is signal conditioning? Explain Analog to Digital converters (ADC) [8]

Q2) Solve any two of the following.

- a) What is protection? Explain following protection circuits. [8]
 - i) Zener diode protection circuit.
 - ii) Transistor opto - isolators
- b) Explain polling and interrupts. [8]
- c) What is Data Acquisition system? Discuss Multiplexers. [8]

P.T.O.

Q3) Solve any two of the following.

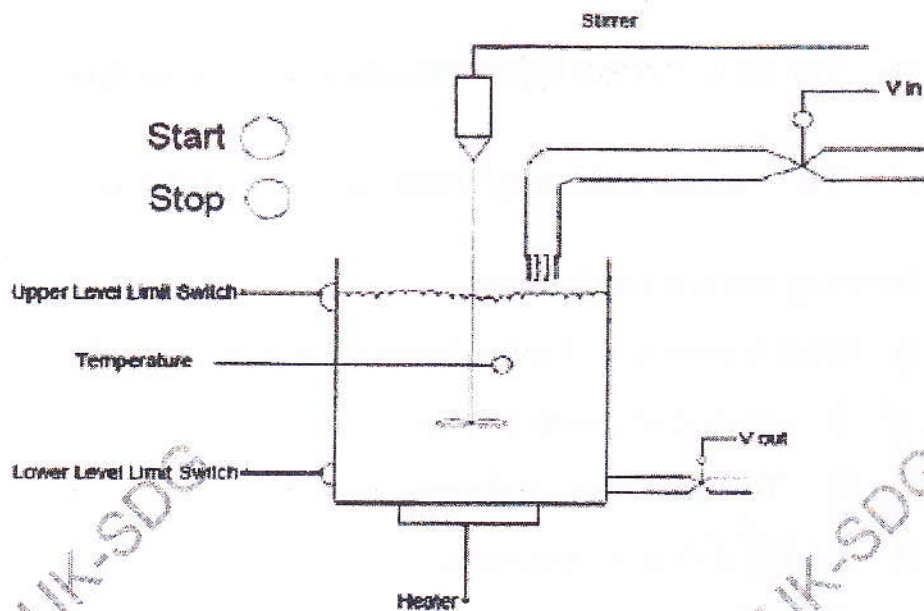
- What are flip flop circuits? Explain master slave flip flop. [8]
- Draw a labeled diagram of architecture of 8051 microcontroller. [8]
- Write a note on Selection and Applications of Microcontroller. [8]

Q4) Solve any two of the following.

- Explain input output updating w.r.t. programmable logic controllers. [8]
- Explain important functions of each of the following components of PLC; [8]
 - Central processing unit ,
 - I/O Modules
 - Programming device,
 - Power supply unit
- Explain the following machine control terminology [8]
 - RUN
 - STOP
 - JOG
 - Cycle
 - INCH

Q5) a) Draw and explain PLC ladder logic diagram for 'Two handed anti tie down anti repeat operation'. [8]

- Construct a PLC ladder diagram for the following objective. [12]
 - Fill the tank
 - Heat and stir the liquid for 30 minutes
 - Empty the tank and repeat step 1



Q6) Solve any two of the following.

- a) For a PLC based traffic control light application explain. [8]
 - i) Internal relays
 - ii) Counters
 - iii) timers
- b) With the help of suitable block diagram explain part loading and unloading system. [8]
- c) Write a note on fault finding and trouble shooting. [8]

