

# MECHATRONICS

## QUESTION BANK

### UNIT – I

#### Part A:

- 1) Define Mechatronics.
- 2) What is meant by a system in mechatronics?
- 3) Name the applications of Mechatronics.
- 4) What are the elements of a measurement system and sketch its block diagram?
- 5) What are the basic functions of control systems?
- 6) Compare closed loop and open loop control system.
- 7) Sketch and name the elements of a closed loop control system.
- 8) Distinguish between a sensor and transducer.
- 9) What is hysteresis?
- 10) What are the different types of strain gauges?
- 11) Define Hall Effect.
- 12) What is the difference between absolute encoder and incremental encoder?
- 13) List the types of proximity sensors.
- 14) What is stroboscope?
- 15) What are the instruments used to measure linear velocity?
- 16) What are load cells? Mention its principle of working.
- 17) Write down the advantages and limitations of potentiometric transducer.
- 18) What are tactile sensors?
- 19) State the advantages and disadvantages of orifice meter.
- 20) List down the instruments used to measure temperature.
- 21) What is the principle used in bimetallic strip?
- 22) What is the principle of RTD?
- 23) What is a thermistor?
- 24) Write short notes on LVDT.
- 25) What are the various configurations of a thermistor?
- 26) What is a thermocouple?
- 27) What is a photo diode?
- 28) Write any four factors to be considered for the selection of sensors.

#### Part B:

- 1) Explain shaft speed control with a neat diagram.
- 2) Explain sequential control in washing machine.
- 3) What is an engine management system? Explain briefly.
- 4) Explain the working principle of automatic camera.
- 5) Discuss the various static characteristics of a transducer.
- 6) Discuss the various dynamic characteristics of a transducer.
- 7) Describe neatly potentiometer sensor.
- 8) Explain the working principle of LVDT.

- 9) Explain the working of Hall Effect sensor.
- 10) Discuss how velocity is measured using electro magnetic sensors.
- 11) Write a detailed note on pressure measuring systems and pressure measuring transducers.
- 12) Explain the working principle of thermistor.
- 13) Explain the working of thermocouple.
- 14) Explain how an optical encoder can be used to measure the absolute position.
- 15) Explain the working of pyro electric sensors.