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MT 8591 Sensors and Instrumentation

Important 13mark questions

Unit I

1. Explain the dynamic characteristics of instruments.
2. With a neat block diagram explain the generalized measurement system.

Unit II

1. Describe with neat diagram the contact type of encoders and explain why Gray code is used in them.
2. Describe the constructional details of a resistance potential divider and derive the expression for its output voltage when connected across a meter of finite impedance.

Unit III

1. Explain the construction, working principle and applications of (i) Hall effects sensor (ii) Magnetic sensors.
2. Explain the construction of (i) Wire wound strain gauge with deriving the expression for gauge factor (iii) Load cell.

Unit IV

1. Explain with a neat sketch the principle of operation and construction of a photovoltaic cell. Also brief why it is very useful for space applications.
2. Describe the method of measurement of sensor signal with the use of
 - (i) Resistance Temperature Detector
 - (ii) MEMS sensor

Unit V

1. Based on choice of required sensors explain (i) environmental monitoring (ii) Automobile Application.
2. Give the need for signal conditioning and elaborate the steps involved in signal conditioning for a data acquisition system.