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Total No. of Questions : 09] [Total No. of Pages : 02

Paper ID [EC203]

 (Please fill this Paper ID in OMR Sheet) MAY-08

B.Tech. (Sem. - 3rd)

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION (EC - 203)

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A *(10 x 2 = 20)*

Q1)

a) Why is sensitivity of the a.c. scale of a multimeter less than the d.c section?

b) What are the different types of strain gauges? Name four resistance materials used in wire and foil gauges.

c) What are the different methods of data transmission?

d) Define accuracy and precision related to measuring instruments.

e) Differentiate between active square wave generator and passive square wave generator.

f) Nixie tube display is based on what principle?

g) What is the function of a data acquisition system?

h) Explain the electron gun assembly in C.R.T.

i) What are the advantages and disadvantages of thermocouples?

j) Draw the block diagram of a general telemetry system.

Section - B

(4 x 5= 20)

Q2) Draw and explain the block diagram of a function generator.

Q3) What is gauge factor? A resistance wire strain gauge uses a soft iron wire of small diameter. The gauge factor is +5.2. Neglecting the piezo-resistive effect. Calculate the Poison's ratio.

Q4) Explain the working of C.R.O with the help of diagram?

Q5) Explain the working principle of Nixie tube.

Q6) With the help of neat diagram, explain the position telemetering system.

Section - C

(2 x 10 = 20)

Q7) (a) Explain the construction and working of electronic multimeter.

(b) Compare LED and LCD in respect of:

(i) Construction material (ii) Working principle.

Q8) (a) Give details of magnetic tape recorders.

(b) Differentiate between current and potential transformer.

Q9) (a) A circuit consisting of a coil, a resistance and a variable capacitor connected in series is tuned to resonance using a Q meter. If the frequency is 500kHz, the resistance 0.5Ω and the variable capacitor set to 350 pF. Calculate the effective inductance and resistance of the coil, if the Q meter indicates 90.

(b) Explain the working of LVDT with diagram.