Seat No. | | | | | | |

* 2 2 9 3 *

मध - 018

Electronics Instrumentation
(1090)

P. Pages : 2

Time : Three Hours **Max. Marks : 100**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** sub-questions from each unit.
5. Figures to the right indicate full marks.
6. Use of non-programmable calculator is allowed.
7. Draw neat diagrams wherever necessary.

UNIT - I

1. a) What are the three general classes of errors ? Explain the same. **10**

b) What are types of standards ? State & explain each of them. **10**

c) Define & explain the following terms: **10**

i) Units.

ii) Calibration

UNIT - II

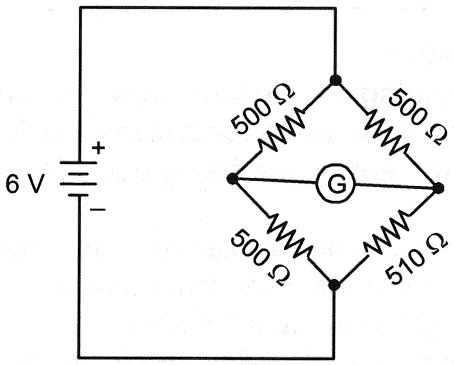
2. a) Design an Ayrton shunt to provide an ammeter with current ranges of 1A, 5A & 10A A d'Arsonval movement with an internal resistance $R_m = 50\,\Omega$ & full scale deflection current of 1 mA is used ? What precautions should be taken when using an ammeter in measurement work ? **10**

b) Draw & explain DC Voltmeter section, DC ammeter section & Ohmmeter section of multimeter. **10**

c) Explain electrodynamometer in power measurement & single phase watt hour. **10**

UNIT - III

3. a) What are the measurement errors occur in Wheatstone bridge & a galvanometer is connected as shown in fig. calculate the current passing through the galvanometer having an internal resistance of 150Ω. **10**



b) List the draw backs of analog recorder & explain magnetic tape recorder. **10**

c) A schering bridge has the following constants
$R_1 = 1.1\ k\Omega$, $C_1 = 0.47\mu f$, $R_2 = 2.2\ k\Omega$, $C_3 = 0.5\mu f$ If a frequency of 1 kHz is used then determine unknown capacitance & dissipation factor **10**

UNIT - IV

4. a) State the different types of digital voltmeters. Explain successive approximation type digital voltmeter. **10**

b) Explain the electronic multimeter. **10**

c) i) Explain digital data recording. **5**
ii) Explain Dot matrix printer. **5**

UNIT - V

5. a) Define Gauge factor, classify the strain gauges. Draw & explain unbonded strain gauge. **10**

b) i) List the important features of instrumentation amplifier ? Compare the same with ordinary op-amp. **5**
ii) List the various types of microphones. Explain the condenser type microphone. **5**

c) i) Explain with constructional diagram of LVDT. **5**
ii) Draw & explain potentiometric transducer. **5**

****