

- 3** Solve any **two** problems : **15**
- (a) For a wheatstone bridge supply is connected to point A and C. A being an upper point of connection i.e. at the upper part of bridge and connected to positive terminal of 5 V d.c. supply. Names are given clock wise as A-B-C-D. AB is 1000 ohms, BC is 2005 ohms, CD is 200 ohms and AD is 100 ohms. The galvanometer has a sensitivity of 10 mm/micoampere and its internal resistance is 100 ohms. Calculate the deflection of the galvanometer if connected with above bridge to mesure unbalance current.
 - (b) A bridge is balanced at 1000 Hz and the following constants : AB, 0.2 mico farad pure capacitance, BC 500 ohm resistor and CD unknown and DA 300 ohm in parallel with 0.1 micro farad capacitor. Find CD.
 - (c) A 150V d.c. supply with negligible internal resistance is connected to a series combination of 100 K ohm and 50 K ohm resistrors. We need to measure voltage across 50K ohm resistor. Two voltmeters are available. Voltmeter 1 has sensitivity of 1000 ohm/volt and voltmeter 2 has sensitivity of 20,000 ohm/volt. Both meters are used for 50 V range. Calculate reading of each voltmeter. Also calculate error as a percentage of true value.
- 4** Answer the following in brief : **15**
- (1) Function of delay line in CRO
 - (2) Use of vector voltmeter.
 - (3) What is true rms volt meter ?
 - (4) What is attenuator probe in CRO ?
 - (5) List all possible measurements of electrical parameters with CRO.
- 5** Answer any **two** : **20**
- (a) Explain electrostatic deflection in CRO with neat diagrams and derive expression for deflection on the screen.
 - (b) Explain analog-frequency meter in detail.
 - (c) Explain the electrical energy meter in detail.
- 6** Write short notes on any **two** of the following : **15**
- (a) Lissajous patterns in CRO
 - (b) Focusing systems in CRT
 - (c) Storage CRO
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