

National Institute of Technology, Delhi

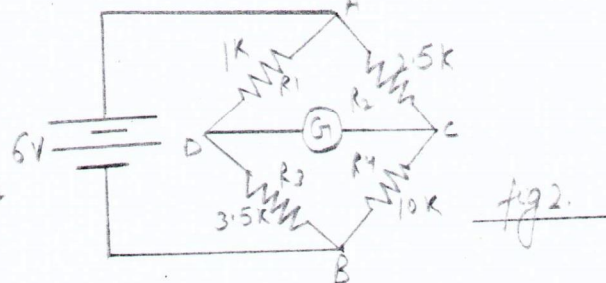
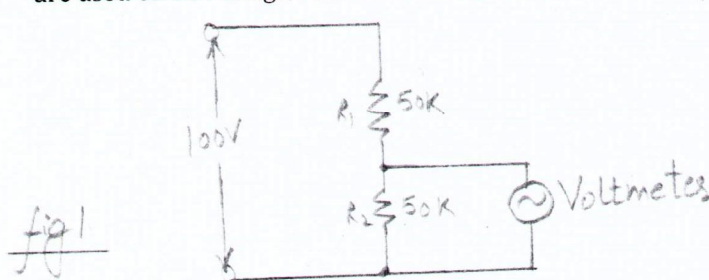
Name of the Examination: ReMid B.Tech

Branch : ECE Semester : VII
 Title of the Course : Electronic Instrumentation Course Code : EC401
 Time: 2 Hours Maximum Marks: 30

Note:

- Questions are printed on BOTH sides. Answers should be CLEAR, TO THE POINT AND LEGIBLE.
- All parts of a single question must be answered together and in the same sequence as given in question paper. ELSE QUESTION SHALL NOT BE EVALUATED.

1. Derive the expression for the shunt resistance of the ammeter circuit using D' Arsonval Galvanometer. [4]
2. A shunt resistance of 300Ω is used with the Galvanometer having internal resistance of 1500Ω . Calculate the multiplying power of the shunt. If it is required to make the multiplying power equal to 40, then Calculate the value of shunt resistance. [4]
3. As shown in figure 1. voltmeter is connected across $50K\Omega$ resistor. If the voltage across R_2 is to be measured by voltmeters having: (i) Sensitivity of $12000\Omega/V$ (ii) Sensitivity of $15000\Omega/V$. Both the meters are used on 50V range. Find which voltmeter will read accurate value of voltage across R_2 . [6]



4. Derive the expression for the balance condition of Maxwell's Bridge. [4]
5. An unbalanced Wheatstone Bridge is given in figure 2. Calculate the current through the Galvanometer. [4]
6. A platinum resistance thermometer has a resistance of 150Ω at 0°C . What is the resistance when temperature is 200°C . When the thermometer has a resistance of 400Ω , what is the value of temperature? The resistance temperature coefficient of platinum is 0.0039°C . [4]
7. An LVDT has the following data, input = 6.3V , output = 5.2V , range = $\pm 0.5\text{in}$. Determine (i) Calculate the output voltage vs core position for a core movement going from $+0.45\text{in}$. to -0.30in . (ii) The output voltage when the core is -0.25in . from the centre. [4]