

Duration – 3 Hours

Total Marks - 80

- N.B.:-** (1) Question No.1 is compulsory.  
 (2) **Attempt** any **three** questions out of remaining Question No. 2 to Question No. 6.  
 (3) Assume suitable data if necessary and justify the same.

- Q 1 a) Define types of possible errors in an instrument. How these errors can be minimized? **5**
- b) Explain resolution and sensitivity of digital meter. **5**
- c) Explain piezo electric transducer. **5**
- d) Explain a De Sauty's bridge to measure the capacitance of capacitor. **5**
- Q 2 a) Explain working principle, construction of moving iron instrument and hence derive the torque equation. **10**
- Q 2 b) Describe construction, working principle and theory of dynamometer type wattmeter. **10**
- Q 3 a) Explain with block diagram Ramp type digital voltmeter. **10**
- Q 3 b) Explain Kelvins double bridge to measure low resistance and hence derive the equation for unknown resistance. **10**
- Q 4 a) Explain Hay's bridge to measure inductance and hence derive the equation for inductance using above bridge, draw phasor diagram. **10**
- Q 4 b) Explain the calibration of voltmeter and ammeter using potentiometer. **10**
- Q 5 a) Explain Thermistor .Write down advantages and disadvantages of Thermistor. **10**
- Q 5 b) Explain the construction and working of LVDT with advantages and disadvantages. **10**
- Q 6 a) Write a short note on PMMC instrument **10**
- Q 6 b) Explain the construction and working of Digital frequency meter. **10**

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