

- (e) Describe the construction and working of thermocouple.
- (f) Describe the different modes of operation of Piezo-electric transducers and explain the application of piezo-electric transducer.

2 Attempt any **four** parts of the following : $5 \times 4 = 20$

- (a) Describe the working of Hays Bridge for measurement of inductance.
- (b) **Fig. 1** shows the connection of a bridge for measuring the inductance **L** and resistance **R** of a coil. Find **R** and **L** if balance is obtained when **Q = S = 1 k Ω** , **P = 500 Ω** , **r = 100 Ω** and **C = 0.5 μ F**.

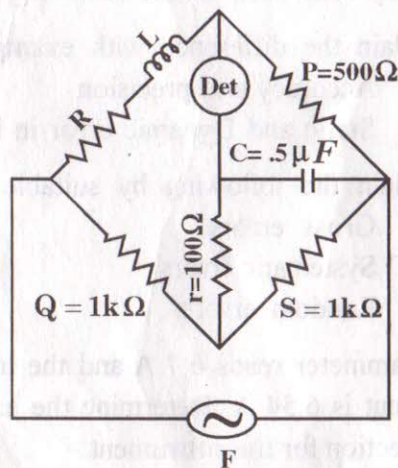


Fig. 1

- (c) Describe AC voltmeter using rectifier with diagram.
- (d) Write a short note on true RMS reading voltmeter.
- (e) Describe the working principle of Q meter.
- (f) A $3\frac{1}{2}$ Digit DVM has an accuracy specification of 1.5% of reading ± 1 digit. What is the possible error in volt, when the instrument is reading 5.00 V on the 10 V range ?

3 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) Explain the theory and working of an LED. Describe the advantages of LCDs.
- (b) Explain the following terms as applied to digital displays :
- Resolution
 - Difference between $3\frac{1}{2}$ Digits and 4 digits displays.
 - Sensitivity of digital meters
 - Accuracy specification.
- (c) Draw and explain the circuit of a digital frequency meter.

