

V.P. & R.P.T.P SCIENCE COLLEGE  
First Internal Test  
US05CELE-04

Date: 7/10/19  
11:00 a.m. to 12:15 p.m.  
Total Marks 25

5 marks

**Q1: Multiple choice questions:**

- (1) Maxwell bridge is used to measure inductance of
- (i) Low Q coil.
  - (ii) High Q coil.
  - (iii) Medium Q coil.
  - (iv) None of the above
- (2) Dissipation factor is
- (i) reciprocal of quality factor.
  - (ii) proportional to quality factor.
  - (iii) reciprocal of power factor.
  - (iv) None of the above.
- (3) The capacitance of a capacitor is given by
- (i)  $C=KA\epsilon_0/d$
  - (ii)  $C= KA/\epsilon_0d$
  - (iii)  $C= K/A \epsilon_0d$
  - (iv) None of above
- (4) In the construction of phototube the photosensitive material is used in construction of
- (i) Anode
  - (ii) Cathode
  - (iii) Grid
  - (iv) Both Anode and Cathode
- (5) The piezoelectric property is found in
- (i) Aluminum and Copper
  - (ii) Barium Titanite and Rochelle Salt
  - (iii) Iron and Manganese
  - (iv) Barium and Boron



**Q2:** The ac bridge is in balance with following constants. Arm AB,  $R=450 \Omega$ , arm BC,  $R=300 \Omega$  in series with capacitor  $C=0.256 \mu F$  and arm CD unknown, arm DA,  $R=200 \Omega$  in series with inductor  $L=15.9 mH$ . The oscillator frequency is 1 KHz. Find the constants of arm CD. 5 marks

OR

**Q2:** Draw Maxwell bridge and explain why it is unsuited for High Q coil measurement. 5 marks

**Q3:** Draw impedance triangle for RC and RL circuits and define Power factor and dissipation factor. 5 marks

OR

**Q3 :** Describe in detail Schering bridge. 5 marks

**Q4:** Write short note on Transducer. 5 marks

OR

**Q4:** Describe in detail LVDT. 5 marks

**Q5:** Obtain expression for sensitivity of Strain Gauge. 5 marks

OR

**Q5:** List all characteristics of thermistors and explain any one in detail. 5 marks

\*\*\*\*\* Best of Luck\*\*\*\*\*