

Q.P. Code: 24378

Time: 3 Hours

Total marks : 80

Note: 1) Question No.1 is compulsory.

2) Attempt any three questions out of remaining five question.

3) Assume suitable data if required.

- Q.1 (a) Differentiate between indicating and integrating instrument. (4)
- (b) Explain resolution and sensitivity of digital meter. (4)
- (c) Explain piezo electric transducer. (4)
- (d) Explain a De Sauty's bridge to measure the capacitance of capacitor. (4)
- (E) Explain resistance temperature detector (RTD). (4)
- Q.2 (A) Explain working principle, construction of moving iron instrument and hence derive the torque equation. (10)
- (b) Describe construction, working principle and theory of dynamometer type wattmeter. (10)
- Q.3 (a) Explain with block diagram Ramp type digital voltmeter. (10)
- (b) Explain Kelvins double bridge to measure low resistance and hence derive the equation for unknown resistance. (10)
- Q.4 (a) Explain Maxwell's Inductance bridge to measure self inductance and hence derive the equation for self inductance using above bridge, draw phasor diagram. (10)
- (b) Explain the construction and working of D.C. Crompton type potentiometer. (10)
- Q.5 (a) Write down the advantages and disadvantages of Thermistor. Find the material constant β of a NTC thermistor if its resistance at 108°C is 1.87 kilo-ohm and it increases to 1.37 mega-ohm as the temperature changes to -37°C . (10)
- (b) Explain the construction and working of LVDT. (10)
- Q.6 Write a short note on (any three)
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| a) PMMC instrument | b) Megger | |
| c) Digital frequency meter | d) Ballistic galvanometer | (20) |