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 tranducer. **(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 108^0c is 1.87 kilo-ohm and it increases to 1.37mega-ohm as the temperature changes to -37^{o}c. **(10)**

(b) Explain the construction and working of LVDT. **(10)**

Q.6Write a short note on (any three)
a)PMMC instrument b)Megger
c) Digital frequency meter d) Ballistic galvanometer **(20)**