(REVISED COURSE)   Q.P. Code : 4794

(3 Hours)   [Total Marks : 80

N. B.

(1) Question No. **1** is **compulsory**.

(2) **Attempt** any **three** questions out of remaining questions.

(3) **Figures** to the **right** indicate **full** marks.

(4) **Assume** suitable **data** if **necessary**.

1.   Solve any **five** :-   20
   - a) Explain how dc potentiometer measures unknown potential. What enhancement is made in dc potentiometer to convert it in Crompton's potentiometer?
   - b) Explain measurement of resistance using Wheatstone's bridge
   - c) What is an instrument transformer? State the types
   - d) Compare RTD, thermistor and thermocouple
   - e) How digital meters are advantageous over analogue meters?
   - f) Short note on - basic Q meter.

2.
   - a) A PMMC instrument with full scale deflection of 100 µA and coil resistance of 50 Ω   10
     is to be converted into a multimeter to measure voltage (0-500V) and current (0-10A). Find the suitable values of shunt and multiplier resistance required.
   - b) Justify Hay's bridge is suitable for measuring inductance of high Q coils. Draw its   10
     circuit diagram and phasor diagram

3.
   - a) Explain systematic, random error and limiting error. Define expression for relative   10
     limiting error.
   - b) Write a short note on - photo electric transducers   10

4.
   - a) How cold junction and lead compensation is provided for Thermocouple? Also sate   10
     need for compensation.
   - b) Explain with neat diagram 'electrodynamometer type power factor meter'? Show   10
     that power factor is proportional to its defection

5.
   - a) Why synchroscope is required? Explain with neat diagram 'Weston type   10
     Synchroscope'?
   - b) Explain with neat diagram 'digital energy meter'   10

6.   Write a short note on-
   - a) Digital multimeter   07
   - b) Megger   07
   - c) Calibration of voltmeter   06