

R07**Code: R7310202**

B.Tech III Year I Semester (R07) Supplementary Examinations December 2015

ELECTRICAL MEASUREMENTS

(Electrical and Electronics Engineering)

(For 2008 regular admitted batch only)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Derive the general torque equations of moving iron instruments.
(b) Explain moving iron repulsion type instrument with a neat diagram.
- 2 Explain the construction and working of Weston-type frequency meter.
- 3 Two watt-meters connected to measure the input to a balanced three phase circuit indicate 2000 W and 1000 W respectively, find the power factor of the circuit:
(i) When both readings are positive.
(ii) When the later reading is obtained after reversing the connections to the current coil of the first instrument.
- 4 (a) (i) How does rotating disc of an induction type energy meter carry a small hole?
(ii) How an Induction type energy meter can be compensated to read reactive kVA hours?
(b) A 50 A, 230 V meter on full load test makes 61 revolutions in 30 sec, If the normal disc speed is 520 revolutions per kWh. Find the percentage error.
- 5 (a) Explain the term Standardization of a Potentiometer.
(b) Draw the circuit diagram of D.C Crompton's potentiometer and explain its working.
- 6 (a) Describe the Substitution method of measurement of medium resistances and list the factors on which the accuracy of the method depends.
(b) A Kelvin bridge is balanced with the following constants. Outer ratio arm 100 Ω and 1000 Ω ; Inner arms ratio 99.92 Ω and 1000.6 Ω ; Resistance of link 0.1 Ω ; standard resistance 0.00377 Ω . Calculate the value of unknown resistance.
- 7 (a) Draw and explain the Anderson's bridge with a neat circuit and phasor diagrams. Discuss the advantages and disadvantages of Anderson's bridge.
(b) Describe the working of Hay's bridge for measurement of inductance.
- 8 Explain the construction and working of a Ballistic Galvanometer.
