

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEMESTER– III EXAMINATION – SUMMER 2015

Subject Code:130903

Date:27/05/2015

Subject Name :Electrical and Electronics Measurement

Time: 02.30pm-05.00pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define and explain the types of errors possible in an instrument. **07**
(b) Compare PMMC and moving iron type instruments. **07**
- Q.2** (a) Explain in detail the construction and working of D'Arsonval Galvanometer. **07**
Also derive the torque equation for the same.
(b) Explain range extension of analog voltmeter and ammeter in detail. **07**
- OR**
- (b) Write the importance of damping torque and also explain the various methods of providing the damping torque in an indicating instrument. **07**
- Q.3** (a) Give the advantages and dis-advantages of Electrostatic instrument. **07**
(b) Explain the principle of hot-wire type instrument and give their limitations. **07**
- OR**
- Q.3** (a) With a neat diagram explain the working of three phase energymeter. **07**
(b) An energymeter is designed to make 100 revolutions of disc for one unit of energy. Calculate the number of revolutions made by it when connected to a load carrying 20A at 230-V at 0.8 p.f. for an hour. If it actually makes 360 revolutions, find the percentage error. **07**
- Q.4** (a) List and explain in brief the advantages of Electronic voltmeter. **07**
(b) Write a short note on True R.M.S. Responding voltmeter. **07**
- OR**
- Q.4** (a) Explain with a neat diagram the working of Synchroscope. **07**
(b) With a neat circuit diagram explain the calibration of a Ammeter with help of DC potentiometer. **07**
- Q.5** (a) State the different methods of 3-phase power measurement. Explain two wattmeter method of 3-phase power measurement in detail. **07**
(b) Explain with a neat diagram the working of a Trivector meter. **07**
- OR**
- Q.5** (a) Explain Resistance standard, Inductance standard and capacitance standard **07**
(b) Explain the working principle of dynamometer type instruments. **07**
