

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 130903****Date: 18-12-2014****Subject Name: Electrical and Electronics Measuring Instruments****Time: 02.30 pm - 05.00 pm****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)** Derive the dimension of the following quantities using fundamental units of L M T I system : (i) E.M.F. (ii) Magnetic flux density (iii) Resistance. **07**
- (b)** Describe the construction and working of PMMC instrument. **07**
- Q.2 (a)** Define & explain the following terms: **07**
(1) Accuracy (2) precision (3) sensitivity .
- (b)** Describe the construction and working of an electrodynamic type instrument? **07**
- OR**
- (b)** Describe the constructional detail of an attraction type moving iron instrument with help of diagram. Derive the equation for deflection if spring control is used. **07**
- Q.3 (a)** Describe with a circuit diagram operation of an electronic voltmeter used in differential amplifier **07**
- (b)** Explain with a neat diagram working of a Synchroscope **07**
- OR**
- Q.3 (a)** Explain extension of range of voltmeter and ammeter **07**
- (b)** What is galvanometer? Sketch and explain the construction and working of ballistic galvanometer. **07**
- Q.4 (a)** Draw and explain the working of Merz Price maximum demand indicator **07**
- (b)** Explain measurement of active power by one wattmeter method with necessary diagrams **07**
- OR**
- Q.4 (a)** Explain measurement of reactive power by Two wattmeter method with necessary diagrams **07**
- (b)** Explain working of hot-wire instruments. Also state advantages and disadvantages of hot-wire instruments. **07**
- Q.5 (a)** Write a short note on Weston frequency meter. **07**
- (b)** Describe the constructional detail of single phase induction type energy meter. **07**
- OR**
- Q.5 (a)** Discuss sources of error in single phase induction type energy meter. **07**
- (b)** Write a short note on digital tachometer **07**
