

**1309****Code : 15EE42T***Register  
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**IV Semester Diploma Examination, Nov./Dec.-2018****ELECTRICAL MEASUREMENT &  
MEASURING INSTRUMENTS****Time : 3 Hours ]****[ Max. Marks : 100**

- Note :** (i) Answer any **six** questions from Part-A. Each question carries **5** marks.  
(ii) Answer any **seven** full questions from Part-B. Each question carries **10** marks.

**PART – A**

1. Explain different types of effects used to produce deflecting torque in an analog instrument. **5**
2. Explain Calibration of Ammeter by using a DC potentiometer with neat circuit diagram. **5**
3. Explain range extension of DC voltmeter using multiplier with circuit diagram. **5**
4. Explain the term burden as referred to instrument transformers. **5**
5. Explain measurement of power by two wattmeter method with circuit diagram. **5**
6. Compare digital Meters with analog meters. **5**
7. Explain the operation of digital tong tester with Block diagram. **5**
8. List and explain factors/characteristics considered for selection of transducer. **5**
9. Explain DC signal conditioning system with Block diagram. **5**

**PART – B**

10. (a) Explain spring control method of producing control torque in an analog instrument. **6**  
(b) List the errors in Electro dynamometer type wattmeter. **4**

11. Describe the working and constructional details of Repulsion type moving iron instrument. 10
12. (a) A moving coil meter having a resistance of  $20\ \Omega$  given full scale deflection when a current of 10 mA is passed through it. Design this instrument to use for measurement of 6
- (i) Current upto one amp
- (ii) Voltage upto 5 volts
- (b) List the advantages and disadvantages of PMMC instruments. 4
13. Explain the errors and adjustments which are made in a single phase induction type energy meter. 10
14. (a) Describe how inductance is measured using Maxwell's bridge. 6
- (b) The Schering bridge employs with capacitor  $C_2$  of 200 pf, a non-reactive resistance  $R_3$  of  $600\ \Omega$  in parallel with variable Capacitor  $C_4$  and variable Resistance  $R_4$ . The balance is obtained with  $C_4 = 0.8\ \mu\text{f}$  and  $R_4 = 500\ \Omega$ . Calculate capacitance  $C_1$  and Resistance  $R_1$ . 4
15. Explain the construction and working of a digital multi meter with Block diagram. 10
16. (a) Explain the operation of digital Synchroscope with Block diagram. 6
- (b) List the applications of a digital LCR meter. 4
17. (a) Explain the operation of a Digital frequency meter. 6
- (b) List the applications of Linear Variable Differential Transformer (LVDT). 4
18. (a) Explain the working of disappearing type optical pyrometer with circuit diagram. 6
- (b) Explain the operation of opto sensor with Block diagram. 4
19. (a) Explain the operation of Bolometer for RF power measurement with a diagram for unbalanced Bridge. 6
- (b) List the applications of Piezoelectric transducer. 4