1811 **Code : 15EE42T**

Register Number | | | | | | | | | | |

IV Semester Diploma Examination, April/May-2019

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** questions from PART – **B**. Each question carries **10** marks.

PART – A

1. Define Error and list the types of errors in instruments. **5**
2. Define the following terms with respect to measuring instruments : **5**
   (a) precision
   (b) accuracy
3. List the merits of PMMC Instruments. **5**
4. A balanced 3-phase star connected load draws power from 400 V supply. The two wattmeters connected indicates W_1 = 6 kw and W_2 = 4 kw. Calculate power and power factor of the circuit. **5**
5. Explain the measurement of unknown resistance by Wheatstone bridge. **5**
6. Explain the measurement of unknown inductance by Maxwell's bridge. **5**
7. State the advantages of digital meters. **5**
8. Draw the block diagram of digital tri-vector meter. **5**
9. Draw the block diagram of DC signal conditioning system. **5**

PART – B

10. Explain the construction and operation of permanent magnet moving coil instrument with neat sketch. **10**

11. (a) Explain range extension of ammeter. 5

(b) Explain calibration of voltmeter using potentiometer. 5

12. (a) Design a shunt to extend the range of ammeter from 500 mA to 5 Amps. The meter has internal resistance of 18 ohms. 5

(b) A voltmeter has a resistance of 20 kΩ when connected in series with an external resistance across 230 V. supply. The instrument reads 160 volts. What is the value of external resistance ? 5

13. Explain with neat diagram construction and working of electro-dynamo meter type wattmeter. 10

14. Explain with neat diagram construction and working of induction type single phase energy meter. 10

15. Explain the operation of digital multimeter with a block diagram. 10

16. (a) Explain the operation of digital tong tester with a block diagram. 7

(b) Draw the block diagram of general digital instrument. 3

17. (a) Explain the construction and operation of Thermo-couple pyrometer with a neat sketch. 8

(b) Expand LVDT and RVDT. 2

18. (a) Explain the operation of LVDT with a neat sketch. 8

(b) List the applications of Piezoelectric transducers. 2

19. (a) Draw the block diagram of digital power factor meter. 5

(b) What is pyrometer and mention its applications. 5