1479 **Code : 15EE42T**

Register Number | | | | | | | |

IV Semester Diploma Examination, April/May-2018

ELECTRICAL MEASUREMENTS AND 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 explain types of errors in instruments. **5**

2. Draw the neat sketch of permanent magnet moving coil instrument and label its parts. **5**

3. Derive the expression of shunt resistance in extending the range of D.C. ammeter. **5**

4. The reading of the two wattmeter connected across the load are 400 W and 1 kW, determine power and power factor of the load. **5**

5. Derive an expression for unknown resistance by using Wheatstone bridge. **5**

6. List any five comparison between digital and analog meters. **5**

7. Draw the block diagram of digital synchroscope. **5**

8. Define transducer and list any three types of transducer. **5**

9. Draw the block diagram of a.c. signal conditioning system. **5**

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PART – B

10.	(a)	Explain the necessity of torque in instruments. List the types of torque.	5
	(b)	List the advantages and disadvantages of moving iron instrument.	5
11.	(a)	Explain with neat diagram construction and working of repulsion type moving iron instrument.	8
	(b)	List the types of range extension used for D.C. meters.	2
12.	(a)	Draw the circuit of range extension of D.C. ammeter, D.C. voltmeter, A.C. ammeter and A.C. voltmeter.	8
	(b)	Find the value of multiplier required if internal resistance of voltmeter is 20 Ω. Full scale deflection with a voltage of 20 mili volt and voltage to be measured is 5 volt.	2
13.	(a)	Explain with neat diagram construction and working of dynamometer type wattmeter.	8
	(b)	List any two types of energymeter.	2
14.	(a)	Explain the neat diagram construction and working of Single Phase Energy Meter.	8
	(b)	List any two errors in energy meter.	2
15.	(a)	Draw the circuit of Maxwell's bridge, Kelvin's double bridge and label the parameter.	5
	(b)	Draw the block diagram of digital power factor meter.	5
16.	(a)	With block diagram explain the operation of digital frequency meter.	8
	(b)	List any two applications of digital meter.	2
17.	(a)	Draw the block diagram of digital tri-vector meter and explain its operation.	8
	(b)	List any two applications of digital trivector meter.	2
18.	(a)	Explain the operation of pyrometer with neat sketch.	8
	(b)	Write the full form of LVDT and RVDT.	2
19.	(a)	Explain the operation of Piezo-electric transducer with neat sketch.	8
	(b)	List any two applications of strain gauge.	2