

STATE BOARD OF TECHNICAL EDUCATION AND TRAINING
TELANGANA

DIPLOMA EXAMINATION (C-18) , C-18-REGULAR-FEB-2021
SEMESTER III , SEMESTER END EXAM

18EE-304C

Electrical and Electronic Measuring Instruments



6338

Exam Date: 24-02-2021

Duration: 3 Hours [09:30 AM To 12:30 PM]

Session: FN

[Total Marks: 60]

PART-A

Instructions:

1. Answer any **TWELVE** questions
2. Each question carries **ONE** mark

12 X 1 = 12

1. Write the methods of obtaining Damping torque in indicating instruments.
2. Write any two suitable examples of indicating instruments.
3. What is the purpose of the following parts in an Attraction type moving Iron Instrument
(i) Springs (ii) Aluminium vane
4. Define a Multiplier
5. What is the need of Current Transformer
6. List any two conditions for Synchronization
7. What is an Ohm-meter.
8. What is the use of wien's bridge.
9. List any four instruments to measure the various electrical quantities.
10. Define Meter Constant
11. What are two important sensors in 1 phase Digital Energy meter
12. What is the working principle of Digital frequency meter.
13. Define sensor?
14. Name any one Capacitance Transducer along with its application
15. State any two blocks in digital multimeter
16. State any two blocks in digital energy meter

PART-B

- Instructions:**
1. Answer any **SIX** questions
 2. Each question carries **THREE** marks

6 X 3 = 18

- 17(a). Sketch the diagram of Eddy current damping providing damping torque in indicating instruments.
----- OR -----
- 17(b). Compare Gravity control and Spring control of an indicating instruments.
- 18(a). List any three advantages of dynamometer type instruments
----- OR -----
- 18(b). List the six common errors in the dynamometer type instruments
- 19(a). Explain the measurement of Power in single-phase A.C circuit by using Wattmeter.
----- OR -----
- 19(b). What are the applications of Current transformer(CT) and Potential transformer(PT)?
- 20(a). List the six bridges used to measure Inductance .
----- OR -----
- 20(b). State the methods of measuring low resistances and High resistances.
- 21(a). Define integrating instruments with suitable examples.
----- OR -----
- 21(b). State the working principle of strain gauge.
- 22(a). What are the precautions to be taken while using Current Transformer?
----- OR -----
- 22(b). Write any six advantages of digital instruments over analog instruments
- 23(a). List any six applications of sensors
----- OR -----
- 23(b). Define (i) Transducers (ii) Inverse transducers.
- 24(a). Write any six advantages of Digital Multimeters
----- OR -----
- 24(b). Write any three advantages of digital energy meters

PART-C

- Instructions:** 1. Answer any **SIX** questions 6 X 5 = 30
2. Each question carries **FIVE** marks

25(a). Explain the methods of obtaining damping torque in indicating instruments.

---- OR ----

25(b). Write different types of electro mechanical instruments according to the principle of working.

26(a). Explain the method of extending the range of moving coil ammeter with the help of shunt

---- OR ----

26(b). Give the comparison between Moving Coil and Moving Iron Instruments in any ten aspects.

27(a). Derive the expression for power factor for Inductive and Capacitive loads using Two-Wattmeter method

---- OR ----

27(b). Explain the construction and working of single-phase Induction type Energy Meter with a neat sketch.

28(a). Explain the working of Shunt type ohmmeter with a legible sketch.

---- OR ----

28(b). Explain the construction of a potentiometer with a legible sketch.

29(a). A DC ammeter and leads have a total resistance of 1.5ohms. The instrument gives a full scale deflection for a current of 50mA. Calculate the resistance of the shunt necessary to give full scale range of 5 A and 25 A?

---- OR ----

29(b). Explain any five factors influencing the choice of transducers

30(a). Explain the construction and working of 3-phase Energy Meter with a legible sketch.

---- OR ----

30(b). Explain the working of Three phase Digital Energy meter with block diagram

31(a). State any three advantages and two disadvantages of Linear variable differential transformer

---- OR ----

31(b). Write any five Resistive Transducers along with its applications

32(a). Explain the working of Phasor measurement unit with block diagram

---- OR ----

32(b). Compare Digital instruments and Electromechanical instruments in any ten aspects