

DIPLOMA OF VOCATION
Industrial Electronics
Subject: Principles of Instrumentation
Subject Code: EDPI-301
Semester: Fifth
January 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number											

SECTION –A (OBJECTIVE TYPE QUESTIONS)

(10x1=10 Marks)

- A. Null type instruments are more accurate than the deflection type instrument. True/False?
- B. What is the function of transducer?
- C. Maximum amount of power may be drawn from the device when the internal impedance of the device _____ the impedance of external load.
- D. Calibration of the instruments removes _____ type of errors.
- E. Define resolution.
- F. The radius of a sphere is estimated as (50 ± 0.5) mm. The estimated error in its mass is _____.
- G. In a 2nd-order system, a small value of damping ratio improves the dynamic characteristics. True/False?
- H. Response of a 2nd-order system is oscillatory when damping ratio is less than unity. True/False?
- I. Define linearity.
- J. Define span.

SECTION –B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

1. Explain the need of grounding and shielding in instrumentation systems.
2. Explain the necessity for calibration of instrument.
3. What measures can be taken to reduce the effect of environmental factors in measurement systems?
4. Explain the different blocks of a measurement system with the help of a block diagram.
5. A 1st-order instrument is to measure signals with frequency content up to 100 Hz with an amplitude inaccuracy of 5 %. What is the maximum allowable time constant?
6. What are the different ways available for displaying parameter values to human operators?
7. Explain the difference between static and dynamic characteristics of measuring instruments.
8. Distinguish between systematic error and random error. What are the sources of these two types of errors?

*******END OF PAPER*******

