C 82444

(Pages : 2)

Name.....

Reg. No.....

SECOND SEMESTER B.A./B.Sc. DEGREE EXAMINATION, APRIL 2020

(CBCSS—UG)

Instrumentation

INS 2B 02—PRINCIPLES OF INSTRUMENTATION

(2019 Admissions)

Time : Two Hours and a Half

Maximum : 80 Marks

Section A

Short Answer Type Questions (2 marks each) (Ceiling 25).

1. Give example for a primary sensing element ?
2. Compare contacting type and non-contacting type instruments.
3. Express acceleration in terms of fundamental quantities.
4. Define Candela as per SI Units.
5. Define instrumental errors.
6. Improper use of a measuring instrument indicates which type of error.
7. Draw hysteresis curve.
8. Define International Standard.
9. Write mathematical equation for thermal noise.
10. The power spectral density of white noise is constant or variable.
11. Compare self generating and power operated instruments with examples.
12. Give examples for dumb and intelligent instrument.
13. What is the function of error detector in measurement system block diagram ?
14. The measured value of a resistance is 10.25 ohm, where as its value is 10.22 ohm Determine the absolute error of measurement.
15. Define Accuracy.

(Ceiling 25)

Section B

Paragraph Type Questions (5 *marks each*) (*Ceiling* 35).

16. Distinguish instrumental error and systematic error.
17. Compare random errors and residual errors.
18. Distinguish accuracy and precision in instruments.
19. What are the functions of a signal conditioner.
20. Define Hysteresis. How it can be determined ?
21. Explain the procedures for calibration.
22. Explain the correction methods for modifying and interfering inputs.
23. Explain different types of noise sources in measurement system.

(Ceiling 35)

Section C (Essay Type Questions)

Answer any **two** *questions.*
10 *marks each.*

24. Three resistors are given R1 = 200 Ω + – 5 %, R2 = 100 Ω + – 5 %, R3 = 50 + – 5 %. Determine the magnitude of resultant resistance and limiting errors in % and ohms. If the above resistances are connected in : (a) Series ; and (b) Parallel.
25. What is meant by reading correction and how is it related to absolute error ?
26. The capacitance of a capacitor is specified as 200 μ F + – 5 % by manufacturer. Determine the limits of capacitance between which is guaranteed.
27. Explain any *four* types of instruments.

(2 × 10 = 20 marks)