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R – 1255

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2023

First Degree Programme under CBCSS

Physics

Elective Course

PY 1661.1- ELECTRONIC INSTRUMENTATION

(2018 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Each question carries **1** mark.

1. Define the terms sensitivity and resolution.
2. What is a multirange ammeter?
3. What is a CRO?
4. What is the use of storage oscilloscope?
5. Where does mesh-storage CRT find application?
6. What are passive transducers? Give an example
7. What is a strain gauge?
8. Mention a circuit that can be used to generate a sine wave in radio frequency range.

P.T.O.

9. What is the application of monostable circuit?

10. What is an astable multivibrator?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** , each carries **2** marks.

11. What are the errors usually encountered while taking measurements?

12. What is the principle and operation of thermocouple type RF ammeter?

13. What are the factors to be considered while choosing an analog voltmeter?

14. What are the advantages of a microprocessor based ramp type DVM?

15. What are the different probes used for CRO?

16. Why active probe is used in CRO?

17. Explain the working of a vacuum photo tube.

18. Explain the working of a photo multiplier.

19. What is a Semiconductor strain gauge?

20. What is the purpose of a frequency synthesizer?

21. State the working principle of a heterodyne wave analyzer.

22. Differentiate between wave analyzer and spectrum analyzer.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. Each question carries **4** marks.

23. Explain how a PMMC can be used as a basic voltmeter.

24. Explain how ac voltmeters can be constructed using rectifiers.

25. With the help of a block diagram explain a microprocessor based ramp type DVM

26. With a diagram explain the basic principle of a CRT.

27. Explain a vertical amplifier used in Cathode Ray Oscilloscope.

28. Mention any three photosensitive devices and their applications.

29. Briefly explain the different types of strain gauges.

30. Draw and explain the block diagram of a multiple loop indirect frequency synthesizer.

31. What are the advantages and limitations of spectrum analyzers?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

32. With the help of a block diagram explain the working of a true rms voltmeter.

33. Draw and explain the block diagram of a digital storage Oscilloscope (DSO).

34. With a help of a block diagram explain a function generator.

35. With a block diagram explain the working of a pulse generator.

(2 × 15 = 30 Marks)