(Pages : 3) C – 1375

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2017
(First Degree Programme Under CBCSS)
PHYSICS
Elective Course
PY 1661.1 : Electronic Instrumentation
(2013 Admission Onwards)

Time : 3 Hours Max. Marks : 80

All Saints' College Trivandrum

SECTION – A

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

1. Name two dynamic characteristics of instruments.
2. What is the resolution of measurement when a 3½ digit multimeter is used in 200 mV range ?
3. A transducer which requires an excitation power supply is known _____ transducer.
4. Name two active transducers.
5. Name a zero order transducer.
6. Name two classifications of strain gauges.
7. Name an alloy used to construct strain gauge.
8. What is the advantage of heterodyne type of wave analyzer ?
9. Draw the spectrum of Double Side Band amplitude modulated signal.
10. Name the type of analog to digital converter used in laboratory.

P.T.O.

SECTION – B

Answer **any eight** questions. **Each** question carries **2** marks.

11. What is static error ?
12. Distinguish between repeatability and reproducibility.
13. Explain the hysteresis in instruments.
14. What are the advantages of a dual slope analog to digital converter ?
15. Compare the resistor divider network and a binary ladder network used in a digital to analog converter.
16. Distinguish between active and passive transducers with examples.
17. Why do we use aquadag coatings in CRT screen ?
18. Compare electrostatic and electromagnetic deflection in CRT.
19. Why do we need a sweep generator in CRO ?
20. What is RTD ? Write the expression for the output voltage and explain each term.
21. What is Seebeck effect ?
22. What are the applications of a thermistor ?

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SECTION – C

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

23. Explain different types of errors in measurement.
24. What is the resolution in measuring 0-5 V signal using a 8 bit analog to digital converter ?
25. Derive an expression for gauge factor.
26. Draw the circuit of a instrument amplifier and explain the advantages.
27. Draw the functional block diagram of spectrum analyser and explain.

28. What is a radiation detector ? Explain various applications.

29. Draw the circuit of a photo detector using photodiode and explain.

30. Draw the block diagram of a heterodyne type of wave analyser and explain the working.

31. Draw the circuit diagram of sweep circuit and explain its working.

SECTION – D

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

32. Give the classification of transducers. Describe a method for measuring temperature.

33. Draw the block diagram of dual slope analog to digital converter and explain how it is suitable for a laboratory type DVM.

34. What is Total Harmonic Distortion ? Draw the necessary block diagram and explain how to determine THD of an amplifier ?

35. With the help of a neat diagram, explain the working of an astable multivibrator. Derive an expression for the frequency also.

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