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Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2018
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 static characteristics of instruments.
2. What is the resolution of measurement when a $4\frac{1}{2}$ Digit multimeter is used in 200 mV range ?
3. A transducer which is self generating is known _____ Transducer.
4. Name two passive transducers.
5. Name a first order transducer.
6. Name two types of strain gauges.
7. Name the materials used for thermocouple.
8. What is a wave analyser ?
9. Draw the spectrum of Double Side Band amplitude modulated signal.
10. Name the type of analog to digital converter used in DVMs.

SECTION – B

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

11. What is static error and how to correct it ?
12. Distinguish between precision and accuracy.

P.T.O.

13. Explain the term drift. What are the different types of drifts ?

14. How does a dual slope analog to digital converter works independent of circuits ?

15. What is the advantage of binary ladder network over variable resistor network used in a digital to analog converter ?

16. What is the advantage of active transducers compared to passive transducers ?

17. Explain the electron gun used in a CRO.

18. Explain the electrostatic deflection in CRT.

19. Draw the circuit of a sweep generator.

20. What is a thermistor ? Write the expression for the output voltage and explain each term.

21. Explain seebeck effect and hence the working of thermocouple.

22. Compare a RTD and thermistor.

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SECTION – C

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

23. What is the role of legal metrology department in measurement ?

24. What is the resolution in measuring 0-2 V signal using a 10 bit analog to digital converter ?

25. Derive an expression for Gauge factor.

26. Draw the block diagram of function generator and explain.

27. Draw the functional block diagram of spectrum analyser and explain.

28. What is a frequency synthesizer ? Explain various applications.

29. Draw the circuit of a photo detector using PIN Photodiode and explain the advantages.

30. Draw the block diagram of CRT and explain.

31. Draw the circuit diagram of time base generator in CRO and explain.

SECTION – D

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

32. Draw the block diagram of a general measurement system and explain each block.

33. Draw the block diagram of DVM. Explain how it work independent of circuits.

34. What are different types of Harmonic distortion ? Draw the necessary block diagram to determine Harmonic distortion and explain.

35. Draw the block diagram of storage CRO and explain each block.

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