

G 2781

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Reg. No.....

Name.....

M.Sc. DEGREE EXAMINATION, JUNE 2015

Fourth Semester

Faculty of Science

Branch II Physics-A—Pure Physics

Paper XVI-Special Paper IV (A) ELECTRONICS—ELECTRONIC INSTRUMENTATION

(Prior to 2012 Admission)

Maximum : 75 Marks

Time : Three Hours

Part A

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

1. Explain the working of a shunt type ohmmeter.
2. Compare the sensitivity of a.c. voltmeter with that of a d.c. voltmeter.
3. Explain the sampling time base used in sampling oscilloscopes.
4. Explain the features of cathode ray tube.
5. Write the specification of X-Y recorder.
6. What are the applications of Wheatstone Bridge ?
7. What are the advantages of digital transducers ?
8. Describe the term real time analyzers.
9. Explain with Wienbridge method of harmonic distortion analyzer.

(6 × 2 = 12 marks)

Part B

*Answer any three questions.
Each question carries 5 marks.*

10. Explain with a diagram the working of transistor voltmeter. What are the drawbacks of transistor voltmeters ?
11. Explain how a multimeter can be used as a voltmeter and ammeter.
12. Explain the principle of operation of strip chart recorders with a block diagram.
13. Explain different types of bridges. What are the advantages of bridges.
14. Explain the operation of a digital Fourier analyzer.

(3 × 5 = 15 marks)

Turn over

Part C

*Answer all questions.
Each question carries 12 marks.*

15. (a) What is a differential voltmeter ? What are the different modes of operation of d.c. standard differential voltmeter ?

Or

- (b) Explain true RMS voltmeter. What are the considerations in selecting an analog voltmeter.
16. (a) Explain with the block diagram of digital storage oscilloscope. Explain the different modes of operation.

Or

- (b) Explain the working of a strip chart recorder. Compare strip chart recorder with circular chart recorder.
17. (a) What is a strain gauge ? Define the gauge factor of a resistance strain gauge. What are the important precautions to be taken while using metallic wire strain gauges ?

Or

- (b) What are the common detectors used for AC bridges ? Discuss the balancing condition of AC bridges.
18. (a) Explain the harmonic distortion analyzers. What are the causes of harmonic distortions.

Or

- (b) Explain basic wave analyzer with a diagram. Explain the working of a frequency selective wave analyzer.

(4 × 12 = 48 marks)