

TED (15) 4041
(Revision-2015)

A20-3994

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL-2020

ELECTRONIC INSTRUMENTS AND MEASUREMENTS

[Maximum marks: 75]

(Time: 2.15 Hours)

PART – A

(Answer any *three* questions in one or two sentences. Each question carries 2 marks)

- I. (1). Define resolution of an electronic instrument.
(2). What is a transducer? Give an example.
(3). Draw a bridge circuit used for frequency measurement.
(4). Write down the function of a spectrum analyzer.
(5). What is the need for data recorders. (3 x 2 = 6)

PART – B

(Answer any *four* of the following questions. Each question carries 6 marks)

- II. (1). How can a galvanometer be used as an ammeter.
(2). List few important specifications of a digital multimeter.
(3). Explain the operation of a microphone type transducer with example.
(4). Differentiate between dual trace and dual beam CROs.
(5). Explain the use of a Wheatstone bridge in resistance measurement.
(6). Differentiate open loop and closed loop control systems.
(7). Draw a strip chart reducer. (4 x 6 = 24)

PART – C

(Answer *any of the three units* from the following. Each question carries 15 marks)

UNIT –I

- III. (a). With a suitable block diagram explain the operation of an analog multimeter. (8)
(b). List the steps for measurement of resistance using an analog multimeter. (7)

OR

- IV. (a). Explain the working principle of a galvanometer with a suitable diagram. (9)
(b). Draw the block diagram of a frequency meter showing its detailed operation. (6)

UNIT-II

- V. (a). Explain with a neat sketch the functioning of a CRT in a CRO. (8)
(b). Summarize the working principle of an LVDT with a diagram. (7)

OR

- VI. (a). Explain the principle of a thermocouple. What is the purpose of a thermopile. (8)
(b). Draw the block diagram of a digital storage oscilloscope. (7)

UNIT-III

- VII. (a). Explain with block diagram the operation of a function generator. (8)
(b). Explain the operation of Maxwell's bridge. (7)

OR

- VIII. (a). Explain the principle of impedance measurement using Schering's bridge. (8)
(b). Explain the principle of a Q-meter. (7)

UNIT-IV

- IX. (a). Draw the block diagram of an E-Y recorder. (6)
(b). Explain with block diagram an analog data acquisition system. (9)

OR

- X. (a). Explain with block diagram a basic instrumentation systems. (9)
(b). Draw the block diagram of a potentiometer type data recorder. (6)