TED (15) – 4041 Reg. No.....

(REVISION — 2015) Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2018

ELECTRONICS INSTRUMENTS & MEASUREMENTS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define the term 'Sensitivity' for an electronic instrument.
2. List any two applications of CRO.
3. What is Q-meter used for ?
4. State the role of telemetry in instrumentation system.
5. What is a proximity switch ? (5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Differentiate between the terms 'accuracy' and 'precision'.
2. What is an LVDT used for ? Explain its working principle.
3. Explain the operation of a logic analyzer with a neat block diagram.
4. Differentiate between open loop and closed loop control systems.
5. What are the specifications that characterise the performance of digital multimeters ? Explain.
6. List and explain the functional stages of a general instrumentation system.
7. Explain the working of a capacitive type transducer. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain the operation of a digital frequency meter. Which factor does the accuracy of measurement depend on ? 9

(b) Explain the working of a PMMC galvanometer with neat diagram. 6

OR

IV (a) With the help of a suitable diagram, explain how an analog multimeter measures ac voltage. 9

(b) With the support of neat diagram, explain the conversion of a basic Galvanometer into a multi range voltmeter. 6

UNIT — II

V (a) Draw and explain the block diagram of a general purpose CRO. 9

(b) Explain electrostatic focusing in CRT. 6

OR

VI (a) Write notes on the following.

(i) Potentiometric Transducer

(ii) Classification of Strain Gauge 9

(b) How does a current probe measure the current for a wide range of frequency ? Explain. 6

UNIT — III

VII (a) With the help of a block diagram, explain the operation of spectrum analyzer. 9

(b) List and explain with necessary diagrams, the steps in finding an unknown resistance using balanced bridge. 6

OR

VIII (a) Explain the principle of operation of a Q-meter. 9

(b) Briefly explain the calculation of unknown capacitance using schering bridge . 6

UNIT — IV

IX (a) With a neat diagram, explain the functional units of a strip-chart recorder. 9

(b) How does an X-Y recorder plot the relation between two variables ? Explain briefly with a block diagram. 6

OR

X (a) Show the functional stages of a digital DAS with a block diagram and explain their operation. 9

(b) Briefly explain the working of a potentiometric type recorder. 6

———————