ROLL NO. _____

Code: DE59/DE109
Subject: ELECTRONIC INSTRUMENTATION & MEASUREMENT

DipIETE – ET (Current & New Scheme)

Time: 3 Hours | **June 2018** | **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. A meter which is used for measuring voltage, current, Resistance is known as
(A) Voltmeter **(B)** Wattmeter
(C) Meggar **(D)** Multimeter

b. Meggar is an instrument for
(A) Measuring Current **(B)** Measuring Voltage
(C) Measuring Power **(D)** Measuring Resistance

c. Measurement of low resistance is done with the help of
(A) Kelvin Double Bridge **(B)** Wheatstone Bridge
(C) Anderson Bridge **(D)** Schering Bridge

d. With the help of function Generator, we can generate
(A) Voltage **(B)** Wave Forms
(C) Current **(D)** Power

e. Full name of CRT is
(A) Cathode Ray Tube **(B)** Circuit Resistance Test
(C) Colour Red Test **(D)** Common Resistance Test

f. Bolometer method is used for the measurements of
(A) Power **(B)** Voltage
(C) Current **(D)** Resistance

g. A CRO has an electron gun having
(A) Cathode **(B)** Accelerating Anode
(C) Focusing Anode **(D)** All of these

h. A device that converts variations in a physical quantity, such as pressure or brightness, into an electrical signal, or vice versa is known as
(A) Capacitor **(B)** Field Effect Transistor
(C) Transistor **(D)** Transducer

i. Full name of DVM is
(A) Diode Volt Meter **(B)** Digital Volt Meter
(C) Direct Variable Meter **(D)** Differential Variable Meter

j. The SI unit for measuring an electric current is the
(A) Ampere **(B)** Voltage
(C) Resistance **(D)** Watts.

Answer any FIVE Question out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Differentiate between the direct and indirect method of measurement. **(8)**

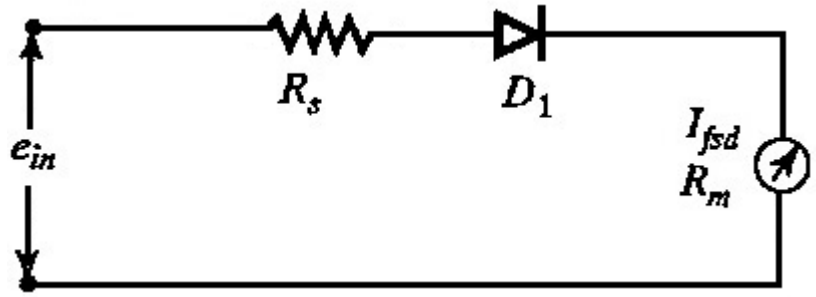
b. A 0-25A ammeter has a guaranteed accuracy of 2 percent of full scale reading. The current measured by this instrument is 10A. Determine the limiting error in percentage. **(8)**

Q.3 a. Explain the measurement of Capacitance using Schering Bridge with Diagram. Also write down its application. **(8)**

b. Explain the measurement of Insulation Resistance using Meggar. **(8)**

Q.4 a. Write a short note on : Digital Multimeter **(8)**

b. Calculate the value of the multiplier resistor R_s for voltmeter as shown in figure below. Where e_{in} = 100 V_{rms}, I_{fsd} = 1mA and R_m = 200Ω. **(8)**



Q.5 a. Explain the working of a dual slope integrating type digital voltmeter with the help of a neat block diagram. **(8)**

b. Describe the circuit and working of a Q-meter. **(8)**

Q.6 a. What is function generator? Explain its function with the help of block diagram. **(8)**

b. Draw the block diagram of CRO **(8)**

Q.7 a. Draw the block diagram of frequency selective wave analyzer. **(8)**

b. Differentiate between a wave analyzer and a harmonic distortion analyzer. **(8)**

Q.8 a. What are the advantages of a magnetic recorder? **(8)**

b. What are the different types of null recorders? Describe the working of bridge type recorder. **(8)**

Q.9 a. What are the advantages of semiconductor strain gauge? **(8)**

b. Give advantages and disadvantages of LVDT. **(8)**