

DipIETE – ET (Current & New Scheme)

Time: 3 Hours

JUNE 2017

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. In any measurement system, which of the following characteristics are desirable:-
(A) Accuracy (B) Sensitivity
(C) Precision (D) All of these
- b. Megger is used for :-
(A) Insulation testing (B) Current
(C) Voltage (D) Low resistance
- c. Measurement of Capacitance can be done using :-
(A) Schering Bridge (B) Anderson Bridge
(C) Wheat Stone Bridge (D) None of these
- d. For range extension of Voltmeter :-
(A) Resistances are applied in series to it
(B) Resistances are applied in parallel to it
(C) Capacitors are applied in parallel in to it
(D) None of these
- e. To measure displacement in terms of electrical energy which transducer is used :-
(A) LVDT (B) Thermometer
(C) LDR (D) NTC
- f. Transducer is a device :-
(A) Which converts one form of Voltage to another form
(B) Which converts one form of Current to another form
(C) Which converts one form of energy to another form
(D) All of these
- g. In C.R.T of C.R.O which type of focusing method is used :-
(A) Electromagnetic (B) Electrostatic and Electromagnetic
(C) Electronic (D) Electrostatic
- h. Find the weight of LSB of an eight bit converter for range of 0-10V dc?
(A) 39mV (B) 78mV
(C) 10mV (D) None of these

- i. Digital Instruments have the input impedance of the order of
 (A) Ω (B) $m\Omega$
 (C) $k\Omega$ (D) $M\Omega$
- j. pH meter is used for :-
 (A) Measuring only acidic nature of solution
 (B) Measuring only basic nature of solution
 (C) Measuring acidic and basic nature of solution
 (D) All of these

Answer any FIVE Questions out of EIGHT Questions.

Each question carries 16 marks.

- Q.2** a. Define following terms :- (2×5)
 (i) Accuracy (ii) Hysteresis
 (iii) Linearity (iv) Relative Error
 (v) Precision
- b. Derive the dimensions of :- (1+1+2+2)
 (i) e.m.f (ii) Magnetic flux density
 (iii) Resistance (iv) Conductivity
- Q.3** a. Explain the working of Wheat Stone Bridge for measurement of medium resistance. (8)
 b. Explain the working Anderson Bridge with the help of neat diagram. (8)
- Q.4** a. Describe main parts of C.R.T in a C.R.O. (8)
 b. Describe sampling oscilloscope with the help of a neat diagram. (8)
- Q.5** a. What is the purpose of harmonic distortion analyser and how it works? Explain with the help of a neat diagram. (2+4+2)
 b. What is Bolometer? How power is measured by means of a Bolometer bridge? (2+6)
- Q.6** a. Explain the working of Strip Chart Recorder with the help of a neat diagram. (8+2)
 b. What are the advantages and disadvantages of X-Y recorder? (3+3)
- Q.7** a. Describe the working of LVDT transformer with the help of a neat diagram. (6+2)
 b. Describe working of Capacitive Transducer using change in distance between plates. (8)
- Q.8** a. Describe working of Q meter. (8)
 b. Describe working of dual step integrating type Digital Voltmeter. (8)
- Q.9** a. Explain the working of AC Voltmeter using Rectifier. (8)
 b. Explain, how range of Ammeter can be extended? (8)