Total No. of printed pages = 5

Et-402/ET&M/4th Sem/2018/J/A

ELECTRONIC TEST AND MEASUREMENTS

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

PART – A

Marks – 25

All questions are compulsory.

1. Fill in the blanks : 1×10=10

   (a) Full form of BJT is ————.

   (b) The full scale deflection of ohm scale in a multimeter reads ————.

   (c) Indication in an oscilloscope is done by a ————.

(d) ———— is the heart of an oscilloscope.

(e) Signal generators can generate ————.

(f) A sawtooth wave can be generated by a ————.

(g) A wave analyzer can be ———— to the frequency of one signal.

(h) Harmonic distortion can be represented by ————.

(i) In DFM Schmitt trigger converts the input signal into a ————.

(j) Amplifier in a circuit ———— a signal.

2. Answer true or false : 1×10=10

(i) A multimeter can measure AC voltages.

(ii) Deflection of electron beam in a CRO is accomplished by one pair of deflection plates.

(iii) Blanking circuit applies a positive voltage to the grid during retrace period of the beam.

(iv) Lissajous patterns are used for frequency measurements in a oscilloscope.

(v) A periodic waveform consists of DC components and a series of sinusoidal harmonics.

(vi) Heterodyne implies mixing of signal frequencies.

(vii) Spectrum analyzer consists of only a narrow band superheterodyne receiver.

(viii) Time base is the time interval between start and stop of gate.

(ix) 1 MHz is equal to 10^6 Hz.

(x) Bolometer is used for speed measurements.

3. Select the correct answer : $1 \times 5 = 5$

(a) Gate (consists / does not consists) of flip flops.

(b) RMS value of wave consists of (fundamental / fundamental + harmonics).

(c) Pre accelerating anodes are applied (positive / negative) potential.

(d) Double beam oscilloscope uses (single / two) electron guns.

7. (a) What do you understand by distortion of a signal ? What is total harmonic distortion ?

(b) Explain the working of a distortion meter. 2+2+5=9

8. (a) Discuss the working of a basic spectrum analyzer.

(b) Explain the utility of a bolometer.

(c) What is IEEE-488 Interface ? 4+2+3=9

9. (a) Draw and explain the basic circuit of a DFM.

(b) Also explain the working in detail of the Time Base in a DFM. 4+5=9