

Total No. of Printed Pages—4

3 SEM TDC GEET (CBCS) GE 3

2 0 2 2

(Nov/Dec)

ELECTRONICS

(Generic Elective)

Paper : GE-3

(Instrumentation)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Choose the correct option : 1×5=5

(a) An ammeter is connected in _____ with
the circuit element whose current is to
be measured.

(i) parallel

(ii) series

(iii) series or parallel

(iv) None of the above

P23/136

(Turn Over)

(2)

- (b) A CRO is used to measure
- (i) voltage
 - (ii) frequency
 - (iii) phase
 - (iv) All of the above
- (c) The audio frequency signal generator is
- a
 - (i) variable frequency audio oscillator
 - (ii) variable frequency radio oscillator
 - (iii) constant frequency audio oscillator
 - (iv) None of the above
- (d) Self-generating type transducers are _____ transducers.
- (i) inverse
 - (ii) passive
 - (iii) active
 - (iv) secondary
- (e) D/A converter is used for
- (i) converting digital signal to analog
 - (ii) converting analog signal to digital
 - (iii) converting digital signal to mixed signal
 - (iv) All of the above

P23/136

(Continued)

(3)

2. Answer the following questions : 2x5=10
- (a) Define accuracy and precision.
 - (b) List the application of DSO (any four).
 - (c) State the significance of Lissajous figure.
 - (d) Define transducers.
 - (e) List the application of data acquisition system.
3. (a) What is loading effect? How can a galvanometer be converted to a voltmeter? Explain with proper circuit diagram. 2+4=6
- Or
- (b) Explain the working of a multimeter as voltmeter, ammeter and ohmmeter with circuit diagram. 6
4. (a) With the help of suitable diagram, describe the working of cathode-ray tube. 4
- (b) What are Lissajous figures? How can they be used to manage the phase difference between two waveforms? 1+4=5
- (c) Write a short note on pulse generator. 3

P23/136

(Turn Over)

5. (a) Discuss the working of a strain gauge and derive the expression for the gauge factor. 6

Or

- (b) Distinguish between transducers and sensors. Explain the working and construction of thermistor. 2+4=6

6. (a) Explain the construction and working of instrumentation amplifier. What are the merits of this amplifier? 6

Or

What is signal conditioner? Briefly describe about preamplifier. 6

- (b) What is bioelectricity? Why are specific amplifiers required for biological signal amplification? 4

- (c) Write a short note on EEG or EMG. 4
