

Roll No.: 158230173

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### EG-190

**B.E. VII Semester (CGPA) Elect. & Commun. Engg. Examination 2018**

### **ELECTRONICS MEASUREMENT AND INSTRUMENTATION**

Paper - EL-701

*Time Allowed : Three Hours]*

*[Maximum Marks : 60*

**Note :** Q.No. 1 is compulsory. There is internal choice in Q.No. 2 to Q.No. 6.

Q.1. Write short answers: 5×2=10

- i) Differentiate between accuracy and precision.
- ii) What is Wagner earthing?
- iii) Define signal to noise ratio and noise figure.

(2)

- iv) Name a.c. bridge which is used for measurement of inductance with low Q value. Draw its circuit.
- v) What is the principle of operation of LCD.

Q.2. a) Explain with block diagram digital read out Oscilloscope. 7

b) Define random errors and systematic errors. 3

OR

c) Draw and explain the working of analog storage oscilloscope and compare it with digital storage Oscilloscope. 7

d) Explain different triggering methods used in a CRO. 3

Q.3. a) Explain the working of an AC bridge. Which is most suitable for capacitance measurement. 5

(3)

- b) Explain how inductance, capacitance and Q of a coil is measured using a Q meter. 5

OR

- c) Explain with connections and phasor diagram working of HAY's bridge used for inductance measurement. 5
- d) Explain the working of chopper type DC voltmeter. How chopping is achieved in such voltmeters. 5

- Q.4. a) Draw and explain the basic block diagram of spectrum analyzer. 5
- b) Explain frequency selective wave analyzer. 5

OR

- c) Explain with block diagram pulse and square wave generator. 6
- d) Discuss input and output impedance measurement of an amplifier. 4

(4)

- Q.5. a) Name any three devices used for measurement of temperature electrically. Give their principle of operation, merits and limitations. 5
- b) Describe a transducer method for displacement measurement. 5

OR

- c) Explain how measurement is done using strain gauge. Compare different types of strain gauges. 5
- d) What are different types of photo sensitive devices? Explain. 5

- Q.6. Explain the working of "any three" of the following with suitable diagram. 10

- i) Frequency counter
- ii) Dual slope DVM
- iii) Successive approximation DVM
- iv) Display Devices (LED and LCD)