

16136(D) - 0 DEC 2016

**B. Tech 5th Semester Examination**  
**Transducers and Signal Conditioning (NS)**  
**EE-312**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt five questions in all, Selecting one question each from section A, B, C and D. Section-E is compulsory. All questions carry equal marks.

**SECTION - A**

1. (a) Describe the basic requirement for selection of transducers for a particular application. (10)  
(b) Explain the capacitive transducer used for measurement of differential pressure. (10)
2. (a) A thermocouple instrument reads 10A at full scale. Determine the current when the meter reads one third of full scale. (10)  
(b) Find the successive approximation A/D output for a 4 bit converter to a 8.217v input if the reference is 5V. (10)

**SECTION - B**

3. Explain basic principle of resistance measurement. Draw the diagram of Electronic ohmmeter. (20)
4. Draw the internal diagram of digital voltmeter and explain its working and features. (20)

2

16136

**SECTION - C**

5. Illustrate the difference between dual trace and Dual Beam oscilloscope. (20)
6. Explain Spectrum analyzer and its application. (20)

**SECTION - D**

7. Draw and explain Magnetic Tape recorders. (20)
8. Define principle of telemetry. Discuss in detail Land line telemetering system. (20)

**SECTION - E**

9. Answer the following:
  - (i) What do you understand by the term transducer? How are they classified?
  - (ii) Suggest a suitable transducer to convert *pressure* and *displacement* into electrical signals.
  - (iii) Define gauge factor.
  - (iv) Define multiplexing.
  - (v) What do you mean by signal conditioning?
  - (vi) How you can measure resistance of very low value?
  - (vii) What is nyquist rate?
  - (viii) Why platinum is the commonly used metal for RTDs?
  - (ix) For which wavelength of light cadmium sulphide cell has the highest response?
  - (x) What is the purpose of focusing anode in CRO?  
(2×10=20)