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Roll No. | | | | | | | | | | | | | Total No. of Pages :02

Total No. of Questions : 08

M.Tech.(EE/PowerSystem) (E-II) (Sem.–2)

APPLIED INSTRUMENTATION

Subject Code : ELE-513/PEE-517

M.Code : 35605

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carriesTWENTY marks.**

1. a) Classify transducers based on input physical quantity involved in transduction . (4)

   b) Draw and explain working of strain gauge transducers.Write way to get electrical signal for the change in the physical parameter and its applications. (16)

2. a) What differences between analog and digital transducers? Explain how to get digital signal from analog transducers. (10)

   b) Why static and dynamic performance parameters for sensor system are required to study. Justify your answer. (10)

3. An Owens bridge is used to maintain the properties of a sample of sheet steel at 2KHz.

   At balanced arm AB is test specimen, arm BC is R3 = 100Ω, arm CD is c4 = 0.1μF and arm DA is R2 = 834Ω in series with C2= 0.124μF. Derive the balanced conditions and calculate the effective impedance of the specimen. (20)

4. a) Explain the construction and operation of various types of angular displacement.(14)

   b) Explain the principle and operation of pH transducers (6)

5. a) What are basic components involved in frequency division multiplexing for telemetry system? Explain. (14)

   b) Draw a 3 bit disc type digital encoder. (6)

6. a) Draw and explain the operation of a digital voltmeter. (10)

   b) Find the Successive Approximation (SA), AD Output for a 4 bit converter to a 3.217V input if the reference voltage is 5 Volt. (10)

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7. a) What are advantages and disadvantages of fibre optic technology for data transmission? (10)

   b) What are types of filters used for filtering noise in instrumentation system? (10)

8. Write short notes on : (20)

   a) Dual slope DVMS (5)

   b) Supervisory control and data acquisition system (5)

   c) LCD device (5)

   d) Q-Meter. (5)

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NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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