www.firstranker.com

Code No: A109211003 **R09** **Set No. 2**

II B.Tech I Semester Examinations,November 2010
TRANSDUCTION OF PHYSICAL VARIABLES
Common to Instrumentation And Control Engineering, Electronics And Instrumentation Engineering

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. List the different types of Electrical resistance sensors. Explain any one of them. [15]
2. What is Hot Wire Anemometer? Explain. [15]
3. Derive the expression for Zero-Order System. Give an example of Zero-Order System and explain the same. [15]
4. Schematically explain Viscosity gage. [15]
5. Draw the cross sectional view of a Double walled resistance Standard and explain the resistance Standard. [15]
6. What do you mean by the order of a system? What are the different standard inputs given to the measuring system for evaluation of its parameters? What are the parameters in a second order system? [15]
7. (a) Describe Electro-Optic type of Elastic Pressure transducer.
   (b) How is the pressure transducer based on Foil- type metal Strain gauge used for pressure measurement? Explain. [8+7]
8. What is Reynold's number? On what factor it depends? [15]

⋆ ⋆ ⋆ ⋆ ⋆

FIRSTRANKER

www.firstranker.com

www.firstranker.com

Code No: A109211003 **R09** **Set No. 4**

II B.Tech I Semester Examinations,November 2010
TRANSDUCTION OF PHYSICAL VARIABLES
Common to Instrumentation And Control Engineering, Electronics And Instrumentation Engineering

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. With a neat schematic explain Ionization gage. [15]
2. What do you mean by resistance Standard? Discuss Secondary Standard and working Standard for resistance. [15]
3. What is PRTD? Explain [15]
4. Derive the expression for time response of 2nd order system subjected to Unit impulse input. Sketch its response. [15]
5. Draw the different probes used in flow velocity detection and explain them. [15]
6. Explain method of High Gain feedback with necessary equations for corrections of interfering inputs. [15]
7. What is the purpose of Vibrating cylinder transducer? Explain [15]
8. What are the different variations in a target flow meter? Sketch one or two types and explain their operations. [15]

⋆ ⋆ ⋆ ⋆ ⋆

FIRSTRANKER

www.firstranker.com

www.firstranker.com

Code No: A109211003 **R09** **Set No. 1**

II B.Tech I Semester Examinations,November 2010
TRANSDUCTION OF PHYSICAL VARIABLES
Common to Instrumentation And Control Engineering, Electronics And Instrumentation Engineering

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. List out the different types of Elastic Transducers for Pressure Measurement and explain their principles of operation. [15]
2. Name the different types of restriction type of flow meter and discuss the advantages and disadvantages of them. [15]
3. Describe Capacitance Standard. [15]
4. (a) The pressure in an Ionization gage chamber is 10^{-5} Torr, for a plate current of 10^{-6} A, what should be the grid current to have a sensitivity of 100/Torr.
   (b) Explain how a microphone is adopted in measuring acoustic intensity, when such intensity is required to be measured? [7+8]
5. What are the two modes of operation of Anemometer? Explain them. [15]
6. 'A practical example of Zero-Order System is the displacement measuring Potentiometer'. Justify. [15]
7. Based on the principle of operation, give the classification of Transducers and explain them. [15]
8. In a Radiation Pyrometer, the energy emitted from a piece of metal is measured A surface emissivity of 0.82 is assumed and the temperature is determined as 1000K. However it is later found that the emissivity is 0.76. Find the error in the temperature determination. [15]

⋆ ⋆ ⋆ ⋆ ⋆

FIRSTRANKER

www.firstranker.com

www.firstranker.com

Code No: A109211003 **R09** **Set No. 3**

II B.Tech I Semester Examinations,November 2010
TRANSDUCTION OF PHYSICAL VARIABLES
Common to Instrumentation And Control Engineering, Electronics And Instrumentation Engineering

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Distinguish between the following:
   (a) International standards
   (b) Secondary standards
   (c) Primary standards
   (d) Working standards. [15]
2. A submarine moves horizontally in sea and has its axis 15 m below the surface of water. A Pitot tube placed in front of submarine and along its axis is connected to the two limbs of the U tube containing Mercury. The difference of mercury level in the two limbs is 170 mm. Find the speed of submarine. Assume that sea water is 1.26 times as dense as compared to normal water. The specific gravity of the mercury is 13.6. [15]
3. What are the types of Ionization gage? Explain with neat sketches. [15]
4. Describe Sinusoidal Transfer function with necessary graphs. [15]
5. Describe the method of Signal Filtering for correction of undesired inputs with example. [15]
6. With a neat sketch explain the measurement by Constant temperature Anemometer. Compare with the Constant Current method. [15]
7. Why is Cold junction compensation necessary in temperature measuring schemes using Thermocouples? What is the recent trend in making such compensation? [15]
8. Draw and explain Sinusoidal Test apparatus for Liquid and gas. [15]

⋆ ⋆ ⋆ ⋆ ⋆

FIRSTRANKER

www.firstranker.com