**18EI601**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | | | | | | | |
| **June, 2022** | | | | **Electronics and Instrumentation Engineering** | | | | | |
| **Sixth Semester** | | | | **Industrial Instrumentation** | | | | | |
| **Time:** Three Hours | | | | | **Maximum: 5**0 Marks | | | | |
| *Answer Question No. 1 Compulsorily.* | | | | | | (10X1 = 10 Marks) | | | |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | | | | (4X10=40 Marks) | | | |
| 1. | a) | Write the basic principle of Doppler transducer | | | | CO1 | |  |
|  | b) | List the advantages of LVDT accelerometer | | | | CO1 | |  |
|  | c) | Compare Inductive and reed type vibration sensors | | | | CO1 | |  |
|  | d) | Define Gauge Pressure | | | | CO2 | |  |
|  | e) | Explain the basic principle of strain gauge Load cell | | | | CO2 | |  |
|  | f) | Explain the basic principle of Electromagnetic flow meter | | | | CO3 | |  |
|  | g) | What is laminar flow? | | | | CO3 | |  |
|  | h) | Define Viscosity | | | | CO4 | |  |
|  | i) | List Different types of Hygrometers | | | | CO4 | |  |
|  | j) | Define Dew point | | | | CO4 | |  |
| **Unit – I** | | | | | | | | |
| 2. | a) | With a neat sketch explain the basic principle of Electro magnetic transducer for velocity measurement | | | | CO1 | **5M** | |
|  | b) | Explain how a stroboscope can be used for the measurement of rotational speed | | | | CO1 | **5M** | |
|  |  | **(OR)** | | | |  |  | |
| 3. | a) | Explain about Seismic accelerometer | | | | CO1 | **5M** | |
|  | b) | Explain in detail about capacitive vibration sensor | | | | CO1 | **5M** | |
| **Unit – II** | | | | | | | | |
| 4. | a) | Compare Hydraulic and Pneumatic load cells. List their advantages. | | | | CO2 | **5M** | |
|  | b) | Explain about Strain gauge torque transducer. | | | | CO2 | **5M** | |
|  |  | **(OR)** | | | |  |  | |
| 5. | a) | Construct a Mcleod gauge for vaccum pressure measurement and explain its working principle | | | | CO2 | **5M** | |
|  | b) | Explain about unequal lever arm balance in force measurement | | | | CO2 | **5M** | |
| **Unit – III** | | | | | | | | |
| 6. | a) | Show that there exists a linear relationship between the volume flow rate and variable area for rotameter. | | | | CO3 | **5M** | |
|  | b) | Briefly explain the principle and operation of Ultrasonic flow meter with a neat sketch and give its applications. | | | | CO3 | **5M** | |
|  |  | **(OR)** | | | |  |  | |
| 7. | a) | How ultrasonic technique can be used in level measurement explain with a neat sketch. | | | | CO3 | **5M** | |
|  | b) | Explain Radioactive method of level measurement. | | | | CO3 | **5M** | |
| **Unit – IV** | | | | | | | | |
| 8. | a) | Explain the basic principle of operation of Saybolt Viscometer. | | | | CO4 | **5M** | |
|  | b) | What is the basic principle of Electrolytic Hygrometer? Explain How humidity can be measured using Electrolytic Hygrometer | | | | CO4 | **5M** | |
|  |  | **(OR)** | | | |  |  | |
| 9. | a) | Explain how Density can be measured using gamma ray method. | | | | CO4 | **5M** | |
|  | b) | Explain about Karl Fischer technique in detail | | | | CO4 | **5M** | |

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