**20EI604/D21**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **July/August, 2023** | **Electronics and Instrumentation Engineering** | | |
| **Sixth Semester** | **Industrial Instrumentation** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | What is the basic principle of electrodynamic transducer? | CO1 | BL1 | 1M |
|  | b) | Define Torque. | CO2 | BL2 | 1M |
|  | c) | Explain the principle of ultrasonic flow meter. | CO3 | BL2 | 1M |
|  | d) | List various head type flow meters. | CO3 | BL1 | 1M |
|  | e) | What is the basic principle of stroboscope? | CO1 | BL1 | 1M |
|  | f) | Give the principle of optical torsion meter. | CO3 | BL1 | 1M |
|  | g) | List different types of Viscosity measurements. | CO4 | BL1 | 1M |
|  | h) | What is meant by piezoelectric effect? | CO2 | BL1 | 1M |
|  | i) | Define Dew Point. | CO4 | BL1 | 1M |
|  | j) | Explain the basic principle of strain gauge Load cell | CO4 | BL2 | 1M |
|  | k) | Distinguish between Moisture and Humidity. | CO4 | BL2 | 1M |
|  | l) | Give the applications of LVDT. | CO1 | BL1 | 1M |
|  | m) | List two advantages of capacitive Hygrometer. | CO4 | BL1 | 1M |
|  | n) | Explain the principle of optical fiber based level indicator. | CO3 | BL2 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain the Construction and working of Doppler Transducer. | CO1 | BL2 | 7M |
|  | b) | Illustrate the working of Piezoelectric accelerometer with a neat diagrams. | CO1 | BL3 | 7M |
|  |  |  |  |  |  |
| 3 | a) | Describe the working of AC generator tachometer with neat sketches. | CO1 | BL2 | 7M |
|  | b) | Explain the inductive type vibration sensor with a suitable application. | CO1 | BL3 | 7M |
| **Unit-II** | | | | | |
| 4 | a) | Compare hydraulic and Pneumatic Load cells and list their advantages. | CO2 | BL4 | 7M |
|  | b) | Illustrate the working principle of Strain gauge torque transducer. | CO2 | BL3 | 7M |
| **(OR)** | | | | | |
| 5 | a) | Outline the working of ionization gauge and also give its applications. | CO2 | BL4 | 7M |
|  | b) | Describe about optical torsion transducer. | CO2 | BL2 | 7M |
| **Unit-III** | | | | | |
| 6 | a) | Show that there exists a linear relationship between the volume flow  rate and variable area for rotameter. | CO3 | BL2 | 7M |
|  | b) | Outline the radiation based level sensors with neat sketches. | CO3 | BL4 | 7M |
| **(OR)** | | | | | |
| 7 | a) | Illustrative the working of ultrasonic flow meter with necessary equations. | CO3 | BL3 | 7M |
|  | b) | Explain the construction and working of fiber optic level sensor with neat diagrams. | CO3 | BL2 | 7M |
| **Unit-IV** | | | | | |
| 8 | a) | Explain how consistency is measured by rotating vane consistency meter. | CO4 | BL2 | 7M |
|  | b) | Outline the working principle of gamma ray densitometer. | CO4 | BL4 | 7M |
| **(OR)** | | | | | |
| 9 | a) | Illustrate the working principle of Saybolt viscometer. | CO4 | BL3 | 7M |
|  | b) | Describe how humidity is measured by dry and wet bulb psychrometer. | CO4 | BL2 | 7M |

