**18EI601**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | | | | |
| **July, 2021** | | | **Electronics & Instrumentation Engineering** | | | | |
| **Sixth Semester** | | | **Industrial Instrumentation** | | | | |
| **Time:** Three Hours | | | | **Maximum :** 50 Marks | | | |
| *Answer Question* ***No.1*** *compulsorily.* | | | | | (10X1 = 10 Marks) | | |
| *Answer* ***ONE*** *question from each unit.* | | | | | (4X10=40 Marks) | | |
| 1. | Answer all questions | | | | | (10X1=10 Marks) | |
|  | a) | What is the principle of capacitive vibration sensor? | | | | |  |
|  | b) | What is tachometer? | | | | |  |
|  | c) | Mention the two modes of operation of accelerometer. | | | | |  |
|  | d) | Mention any two types of load cell. | | | | |  |
|  | e) | What is the principle of Ionization gauge? | | | | |  |
|  | f) | What are the different units of pressure and what do you mean by force summing device? | | | | |  |
|  | g) | What is the basic principle of Electromagnetic flow meter? | | | | |  |
|  | h) | Mention the applications of fibre optic level sensors? | | | | |  |
|  | i) | What is the principle of Pitot tube? | | | | |  |
|  | j) | Write the merits and demerits of dry and wet bulb psychro meters. | | | | |  |
| **UNIT I** | | | | | | | |
| 2. | a) | Elucidate the operation of AC and DC generator tachometers. | | | | | 5M |
|  | b) | Explain the working principle of Stroboscope. | | | | | 5M |
| **(OR)** | | | | | | | |
| 3. | a) | Explain the principle and operation of LVDT accelerometer. | | | | | 5M |
|  | b) | Explain any two vibration measurement techniques. | | | | | 5M |
| **UNIT II** | | | | | | | |
| 4. | a) | Describe the working of Strain gauge load cell and Pneumatic load cell. | | | | | 6M |
|  | b) | Explain working of optical torsion meter. | | | | | 4M |
| **(OR)** | | | | | | | |
| 5. | a) | Discuss the principle and working of McLeod gauge with a neat sketch. | | | | | 5M |
|  | b) | Explain the working of thermocouple gauge with a neat diagram | | | | | 5M |
| **UNIT III** | | | | | | | |
| 6. | a) | Show that there exists a linear relationship between the volume flow rate and variable area for rota meter. | | | | | 5M |
|  | b) | Explain about fibre optic based level sensors | | | | | 5M |
| **(OR)** | | | | | | | |
| 7. | a) | Explain the principle and working of orifice plate flow meter. | | | | | 5M |
|  | b) | How ultrasonic technique can be used in level measurement? | | | | | 5M |
| **UNIT IV** | | | | | | | |
| 8. | a) | How density can be measured using Gamma Ray method. | | | | | 4M |
|  | b) | Explain about different consistency measurement techniques | | | | | 6M |
| **(OR)** | | | | | | | |
| 9. | Elaborate on the following | | | | | | |
|  | a) | Electrical type humidity transducer | | | | | 4M |
|  | b) | Capacitive moisture sensor | | | | | 3M |
|  | c) | Redwood and Say bolt viscometers | | | | | 3M |

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