TED (21) 5081
(Revision-2021)

**2109230145**

Reg.No.....
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# DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2024

## INDUSTRIAL INSTRUMENTATION

[Maximum marks: 75] [Time: 3 Hours]

## PART A

**I. Answer all the following questions in one word or one sentence. Each question carries 1 mark**

**(9 x 1 = 9 Marks)**

| | | Module outcome | Cognitive level |
|---|---|---|---|
| 1 | Write any two units of viscosity. | M1.01 | R |
| 2 | Mention the expression of specific gravity. | M1.01 | R |
| 3 | List any two applications of radiation detectors. | M2.01 | R |
| 4 | Define 'dew point'. | M2.01 | R |
| 5 | Name any two types of load cells. | M3.01 | R |
| 6 | List any two instruments used for speed measurement of motor. | M3.01 | R |
| 7 | Piezoelectric accelerometer converts …….. energy to …… energy. | M4.01 | R |
| 8 | Accelerometer can be used for sensing mechanical vibrations.<br>(a) TRUE<br>(b) FALSE | M4.01 | U |
| 9 | Write any two humidity measurement methods. | M2.01 | R |

## PART B

**II. Answer any eight questions from the following. Each question carries 3 marks.**

**(8 x 3 = 24 Marks)**

| | | Module outcome | Cognitive level |
|---|---|---|---|
| 1 | State the working principle of Hydrometer. | M1.02 | R |
| 2 | List the applications of Viscometer. | M1.03 | R |
| 3 | Draw and label Scintillation counter. | M2.02 | U |
| 4 | Define the following:<br>(a) Relative humidity<br>(b) Absolute humidity | M2.02 | R |
| 5 | Compare contact type and non-contact type of tachometers. | M3.02 | R |
| 6 | State the working principle of Hydraulic load cells. | M3.02 | A |

| | | | |
|---|---|---|---|
| 7 | Write the working principle of Ultrasonic method for thickness measurement. | M4.02 | U |
| 8 | List the advantages of Nano sensors. | M4.02 | R |
| 9 | State the working principle of rotating torque sensor. | M3.02 | A |
| 10 | Draw and label sling psychrometer. | M2.02 | R |

## PART C
**Answer all questions. Each question carries seven marks**

**(6 x 7 = 42 Marks)**

| | | Module outcome | Cognitive level |
|---|---|---|---|
| III | With the schematic diagram explain Redwood Viscometer. | M1.01 | U |
| | **OR** | | |
| IV | Explain the construction and working principle of Hydrogen electrode. | M1.03 | U |
| V | Describe Density measurement using LVDT. | M1.02 | U |
| | **OR** | | |
| VI | Illustrate the construction and working principle of Digital pH Meter. | M1.03 | U |
| VII | Describe the construction and working of Hair hygrometer. | M2.02 | R |
| | **OR** | | |
| VIII | Illustrate the construction and working principle of Geiger Muller Tube. | M2.03 | U |
| IX | Explain the construction and working of strain gauge load cell. | M3.03 | A |
| | **OR** | | |
| X | With the help of neat diagram explain the working of Stroboscope. | M3.02 | U |
| XI | Draw and explain capacitive method for thickness measurement. | M4.03 | R |
| | **OR** | | |
| XII | Explain working principle of Seismic accelerometer. | M4.02 | U |
| XIII | Describe the construction and working of piezo-electric accelerometer. | M4.03 | U |
| | **OR** | | |
| XIV | With the help of neat diagram explain eddy current transducer method for thickness measurement. | M4.03 | U |

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