Seat no: _____ Enrolment no: _____

CVM UNIVERSITY

M.Sc. Physics, Sem-1st

Examination February 2021

Course Code: 101510101, **Paper Title:** Principles of Physical Transducers

Date: 22th Feb. 2021 **Time:** 02:00 PM to 04:00 PM **TOTAL MARKS:** 60

Note: (1) Attempt all question.

(2) Figure to the Right side indicate marks

Q. 1 (A) Answer the following multiple choice question. **[08]**

(1) LVDT contain _____ coils for smooth operation.

(A) One primary , two secondary **(C)** two primary , one secondary

(B) One primary , one secondary **(D)** two primary , two secondary

(2) Foil type strain gauges have_____.

(A) batter thermal and physical strength **(C)** Poor resonance and electrical strength

(B) poor thermal and physical strength **(D)** All of above

(3) As per Bernoulli's equation Quantity of fluid Between two points is _____ .

(A) Increase **(C)** Constant

(B) Decrease **(D)** None of above

(4) Hot film anemometer work on the principle of _____.

(A) Constant Temperature **(C)** Both (A) & (B)

(B) Constant current **(D)** None of above

(5) Temperature measurement range for LM 335 is _____

(A) 40^0 to 100^0 **(C)** -40^0 to 100^0

(B) 40^0 to 1000^0 **(D)** None of above

(6) In load cell _____ is use as transducer for weight measurement.

(A) Thermocouple **(C)** Both (A) & (B)

(B) Strain gauge **(D)** None of above

(7) From Ionization _____ is separated.

(A) Ions & electron **(C)** Both (A) & (B)

(B) Neutron & proton **(D)** None of above

(8) Hall voltage rise in present of _____ .

(A) Magnetic field **(C)** Positive Temperature coefficient

(B) Negative Temperature gradient **(D)** None of above

Q.1 (B) Answer the following (Fill in the blank & True / False) **[08]**

(1) For strain gauge material named Nicrome have ____ % share of chromium.

(2) Pressure can be classified in _____ pressure & elastic pressure.

(3) The triple point of pure water is at _____°C .

(4) Cadmium sulphide has max response at a wave length ____ nm to up to 1000 nm.

(5) Resistive transducer can work by changing distance between two plates. **True / False**

(6) Mechanical properties of monocrystalline silicon have low hysteresis and high repeatability. **True / False**

(7) An IC Temperature Sensor is a two / three terminal integrated circuit. **True / False**

(8) Lead telluride for UV to IR (Large range) has High sensitivity and shorter response time. **True / False**

Q.2 **Answer the following.(attempt any six, each two marks)** **[12]**

(1) List basic requirement of Transducer. Define any one.
(2) Write a short note on Synchros & resolvers.
(3) Draw Rotameter structure diagram.
(4) Explain Cup type anemometer.
(5) Explain Carnot cycle for temperature.
(6) Explain working of Pyrometer.
(7) Enlist force measurements techniques
(8) List three different basic construction types of platinum resistance thermometer and draw any one

Q.3 Explain Semiconductor type strain gauges in detail. **[08]**

OR

Q.3 Explain principle of displacement for Resister and inductor using suitable example and diagrams **[08]**

Q.4 With necessary diagram show working principle of head type flow meter. **[08]**

OR

Q.4 List all five corrugated diaphragms and explain working of corrugated diaphragm. **[08]**

Q.5 What is force? Explain proving ring and beam cantilever working with neat diagram & list applications. **[08]**

OR

Q.5 In detail explain Resistance Temperature device (RTD) construction and working in detail. **[08]**

Q. 6 Explain digital angular displacement transducer. **[08]**

OR

Q. 6 Explain Hall's effect and its principals; list any eight applications for Hall's effects. **[08]**

-: All The Best:-