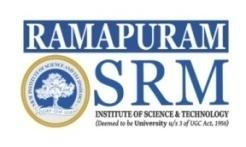
**SRM Institute of Science & Technology**

**College of Engineering & Technology**

Ramapuram Campus

**Department of Electronics and Communication Engineering**

Academic Year (2021-2022)

Question bank unit V

**(Common for III YEAR CSE All Sections, CSE Specialization: IOT, BDA, Cyber security, AIML & IV YEAR ECE)**

Sub. Code: 18ECO133T

Sub. Name: SENSORS AND TRANSDUCERS Semester: V & VII

MCQ

**The rate at which fluid flows through a closed pipe can be determined by**  
  
A. Determining the mass flow rate  
B. Determining the volume flow rate  
**C. Either (a) or (b)**  
D. None of these

**Conveyor-based methods is used for the measurement of the flow of**  
  
**A. Solids**  
B. Liquid  
C. Gas  
D. All of these

**For the measurement of flow rate of liquid, the method used is**  
  
A. Conveyor-based methods  
B. Bourdon tube  
**C. Coriolis method**  
D. Thermal mass flow measurement

**The devices used for flow obstruction is/are**

A.Orifice plate  
B. Venturi tube  
C. Flow nozzle and dall flow tube  
**D. All of these**

**The device which is used for making temporary measurements of flow is**  
  
A. Venturi  
B. Dull flow tube  
**C. Orifice plate**  
D. Pitot static tube

**For the measurement of flow the cheapest device is**  
  
A. Venturi  
B. Dall flow tube  
**C. Flow nozzle**  
D. Pitot static tube

**The instrument which is not suitable for the application in automatic control scheme**  
  
**A. Rotameters**  
B. Pitot static tube  
C. Rotary piston meter  
D. Orifice plate

\_\_\_\_\_\_\_\_\_\_\_\_\_ measures velocity at a point of fluid in a stream.  
a) Venturi meter  
b) pH meter  
**c) Pitot-Static tubes**  
d) None of the mentioned

Which of the following represents obstruction type flow measuring systems?  
a) Centrifugal force type  
b) Rotating vane system  
**c) Flow nozzle device**  
d) None of the mentioned

Which of the following represents the correct relation between flow rate and area of pipe?  
**a) Direct proportionality**  
b) Inverse proportionality  
c) Equal  
d) None of the mentioned

The flowmeter which cannot measure bidirectional flow is

a)Ultrasonic flowmeter

**b)Turbine flowmeter**

c)Electromagnetic flowmeter

d)Coriolis mass flowmeter

### Venturimeter measures the volumetric flow rate of a fluid flowing through a

#### a)Flat plate

#### **b)Pipe**

#### c)Channel

#### d)None

### An orifice meter measures the volumetric flow rate of a

#### a)Liquid

#### b)Gas

#### **c)Both liquid and gas**

#### d)None

### The most common fluid for which Orifice meter used is

#### a)Water

#### **b)Steam**

#### c)Nitrogen gas

#### d)None

### Orifice meter is a meter which works with

#### Temperature difference

#### **Pressure difference**

#### Both (a) & (b)

#### None

### The pressure drop across an Orifice meter is

#### Parabolic

#### **Linear**

#### Curvilinear

#### None

### As the fluid approaches the Orifice meter, pressure

#### **Increases slightly**

#### Decreases slightly

#### No change

#### None

### A Rotameter measures

#### Mass flow rate

#### **Volumetric flow rate**

#### Both (a) & (b)

#### None

### In a Rotameter, during flow measurement, float is

#### Moving slowly

#### **Stationary**

#### Moving fast

#### None

### A Rota meter is installed

#### Horizontally

#### **Vertically**

#### Inclined

#### None

### Pitot tube is used in a

#### Laminar flow

#### Turbulent flow

#### **Highly turbulent flows**

#### None

Which of the following flow-measuring elements is inherently linear and requires no signal characterization (e.g. sqaure-root extraction) anywhere in the loop?

a)Venturi  
b)Orifice plate  
c)Pitot tube  
**d)Turbine**

Identify which of the following flowmeters inherently measures mass flow rate:

**(A) Thermal**  
(B) Magnetic  
(D) Flow nozzle  
(D) Vortex  
(E) Venturi tube

Magnetic sensors are widely used in

**a)electronic gadgets in entertainment**

b)VCR Camera

c)Oven

d)Dishwasher

Hall sensors are used in

a)VCR Cameras

b)Stereo sets

c)tape recorders

**d)All the above**

Magnetoresistive sensors are used in

**a)VCR Camera and Tape recorders**

**b)** Oven

c) Dishwasher

d)Electric carpet

Infrared sensors are employed in

a) CD Player

**b)Microwave ovens**

c)Dryer

d)Dishwasher

Photodiode and phototransistor radiation sensors are used as major elements in

a)Refrigerators

b)washing machines

c)TV sets and CD player

**d)All the above**

VCR Camera uses

a)CCD Image sensors

b) MOS image sensors

**C)All the above**

Pyro electric IR sensor used in

**a)Microwave ovens**

b)Refrigerators

c)washing machines

d)TV sets and CD player

The sensor used for spin-dry system in washing machines is a

a)Hall Effect sensor

**b)PZT Ceramic sensor**

c) Thermistor

PZT is a solid solution of

a)Lead zirconate(PbZrO3)

b)Lead titanate (PbTiO3)

**c)All the above**

\_\_\_\_\_\_\_\_is used for frost detection in refrigerators

a)Phototransistor

b) Thermistor

**c)Photo diode – LED assembly**

d)None of the above

A \_\_\_\_\_\_\_is a very effective device used for detecting the rotating speed of a washing machine drum

**a)Hall Effect sensor**

b)Biosensor

c)Thermistor

d)None of the above

Video cassette recorders , for precise control of the servomotor that drives the playback and recording heads, use

**a)Hall and magnetoresistive sensors**

b) Biosensor

c) Thermistor

d)Photo diode

The important categories in home automation are

a)House control

b)Energy control/Optimization

c)Home security

**d)All the above**

Proximity sensor is used in

a)speed measurement

**b)Distance measurement**

c)Pressure measurement

d)None of the above

In closed container type level measuring system, pressure at top of container is due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_  
a) Vacuum pressure  
**b) Vapor pressure**c) Liquid pressure  
d) Atmospheric pressure

Which of the following devices are used for a level to force conversion?  
**a) Load cell**b) Membrane  
c) Diaphragm  
d) Voltmeter

**The ionization gauge an instrument used for the measurement of**  
  
A. **Very low pressure**B. Medium pressure  
C. High pressure  
D. Very high pressure

**Dipsticks are used for the**  
  
A. Pressure measurement  
B. Flow measurement  
C. Displacement measurement  
**D. Level measurement**

Long answers

State different methods used for Flow measurement. Explain any one method used for flow measurement. State advantages and disadvantages of any one of them.

Highlight the Comparison of Venturi and Orifice flow meter

Explain the operation of electromagnetic flow meters with suitable diagram or Describe working principle of Electro-magnetic type flow meter, with its merit and demerits.

Explain Ultrasonic flow meters operated using the transit-time differential method and derive volumetric flow rate .

Explain Ultrasonic Doppler flowmeters and derive volumetric flow rate .

With a neat sketch explain the construction and working of Rotameter. State it’s advantages and disadvantages

Derive an expression for the rate of flow in a venturimeter

Explain the construction and working of electromagnetic flow meter .State the applications of electromagnetic flow meter.

Explain the working of Hotwire anemometer and its application for the measurement of flow rate of fluids or Explain flow measurement technique using Hot Wire Anemometer.

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Elaborate the function of the accelerometer? Explain different electrical and physical specifications for accelerometers.

Explain the classifications of vibration measuring instruments?

Enlist different vibration measuring instruments

Explain, how the following systems can be used for vibration pickups:

* 1. LVDT, ii) Piezoelectric accelerometer.

Write a short note on seismic instruments

Design a home automation system with various sensors and explain neatly

Elaborate the application of sensors in home appliances and explain any one in detail.

Explain the application of sensor in manufacturing with Interaction diagram between sensors and levels of operations and sensor functions

Explain briefly on medical diagnostic sensors

Elaborate on Sensors for environmental monitoring

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_