

## Unit wise Question Bank

### Unit-I

<b>Part – A (Short Answer Questions)</b>				
S.No.	Question	BT	CO	PO
1	What is meant by measurement?	L1	CO1	1,2,3,4
2	What is direct comparison method?	L1	CO1	1,2,3,4
3	Give two examples for primary and secondary measurement	L1	CO1	1,2,3,4
4	Define a measuring instrument.	L1	CO1	1,2,3,4
5	What is Speed of response.	L1	CO1	1,2,3,4
6	Define sensitivity	L2	CO1	1,2,3,4
7	What is systematic and random error	L1	CO1	1,2,3,4
8	List five factors that are to be considered while selecting an instrument.	L1	CO1	1,2,3,4
9	Compare a primary transducer to secondary transducer.	L2	CO1	1,2,3,4
10	Define the term transducer	L2	CO1	1,2,3,4
<b>Part – B (Long Answer Questions)</b>				
11	Sketch and explain with a block diagram of generalized measurement system and its elements with an example.	L2	CO1	1,2,3,4
12	a) Explain the following terms: i) Range ii) span iii) Drift and iv) Calibration	L2	CO1	1,2,3,4
	b) Explain the terms sensitivity and readability			
13	a) Describe the principle of inductive transducers and explain about electromagnetic and eddy-current active inductance transducers with neat sketch	L2	CO1	1,2,3,4
	b) Describe about the primary, secondary and tertiary measurements with neat schematic diagrams of a suitable examples	L2	CO1	1,2,3,4
14	Classify the various errors and explain them in details.	L2	CO1	1,2,3,4
15	Explain with neat sketch of Linear Variable Differential Transformer (LVDT) for displacement measurement.	L3	CO1	1,2,3,4
16	a) Explain the various sources of error in measuring instruments?	L3	CO1	1,2,3,4
	b) Explain the dynamic performance characteristics of measuring instruments	L3	CO1	1,2,3,4

## Unit-II

<b>Part – A (Short Answer Questions)</b>					
S.No.	Question	BT	CO	PO	
1	Define Temperature.	L1	CO2	1,2,3,4	
2	What is a thermocouple?	L1	CO2	1,2,3,4	
3	What are pyrometers?	L1	CO2	1,2,3,4	
4	State limitations of total radiation pyrometer	L1	CO2	1,2,3,4	
5	What are the limitations of a thermistor?	L1	CO2	1,2,3,4	
6	What is dynamic or impact pressure.?	L2	CO2	1,2,3,4	
7	Differentiate between Atmospheric pressure and absolute pressure.	L1	CO2	1,2,3,4	
8	Differentiate between gauge pressure and vacuum pressure	L1	CO2	1,2,3,4	
9	List few applications of pressure measurement	L2	CO2	1,2,3,4	
10	Differentiate between static pressure and stagnation pressure	L2	CO2	1,2,3,4	
<b>Part – B (Long Answer Questions)</b>					
11	a) Explain the working of a helix bimetallic thermometer	L2	CO2	1,2,3,4	
	b) Explain the working of a spiral bimetallic thermometer		CO2		
12	a) What are RTDs? On what basic principle do they work? Explain with diagram one of the RTDs.	L2	CO2	1,2,3,4	
13	a) State and explain three laws of thermocouples.	L2	CO2	1,2,3,4	
	b) Explain how a thermocouple is used to measure temperature	L2	CO2	1,2,3,4	
14	How is dead weight tester used to calibrate pressure measuring devices.	L2	CO2	1,2,3,4	
15	a) Explain the working of a bourdon tube pressure gauge.		CO2		
	b) Explain the McLeod vacuum gauges used for pressure measurement and its limitations.	L3		1,2,3,4	
16	a) Explain the bellows gauge used to measure gauge pressure.	L3	CO2	1,2,3,4	
	b) Explain the bellows arrangement used to measure differential pressure.	L3	CO2	1,2,3,4	

### Unit-III

<b>Part – A (Short Answer Questions)</b>					
S.No.	Question	BT	CO	PO	
1	State any one linear velocity transducer.	L1	CO3	1,2,3,4	
2	State any three mechanical tachometers used to measure angular velocity.	L1	CO3	1,2,3,4	
3	State the basic principle behind tachogenerators	L1	CO3	1,2,3,4	
4	List the various contactless electrical tachometers	L1	CO3	1,2,3,4	
5	What are the secondary or rate meters?	L1	CO3	1,2,3,4	
6	Where are magnetic flow meters used?	L2	CO3	1,2,3,4	
7	What is an ultrasonic flow meter?	L1	CO3	1,2,3,4	
8	What is liquid level?	L1	CO3	1,2,3,4	
10	On what basic principle does an obstruction meter work	L2	CO3	1,2,3,4	
<b>Part – B (Long Answer Questions)</b>					
11	a) With a neat diagram explain the working principle of stroboscope tachometers.	L2	CO3	1,2,3,4	
	b) With a neat diagram explain the working principle of Photoelectric tachometers.		CO3		
12	a) With a neat sketch explain the working principle of piezo electric accelerometer.				
	b) With a neat sketch explain the working principle of reed type vibrometer.	L2	CO3	1,2,3,4	
13	a) With a neat sketch explain the working principle of magnetic flow meter.	L2	CO3	1,2,3,4	
	b) With a neat sketch explain the working principle of Rotameter.	L2	CO3	1,2,3,4	
14	With a neat sketch explain the working principle of Ultrasonic flow meter using travel time difference method. And also explain its advantages and disadvantages.	L2	CO3	1,2,3,4	
15	With a neat diagram explain any two types of direct liquid level measurement.	L3	CO3	1,2,3,4	
16	With a neat diagram explain any two types of indirect liquid level measurement.	L3	CO3	1,2,3,4	

## UNIT IV

<b>Part – A (Short Answer Questions)</b>				
S.No.	Question	BT	CO	PO
1	What are strain gauges?	L1	CO4	1,2,3,4
2	What is piezo-resistivity?	L1	CO4	1,2,3,4
3	What is a bonded strain gauge?	L1	CO4	1,2,3,4
4	What is dry air, moist air and saturated air?	L1	CO4	1,2,3,4
5	What is dry bulb and wet bulb temperature?	L1	CO4	1,2,3,4
6	Give one application of finding dew point temperature.	L2	CO4	1,2,3,4
7	Write the basic principle on which a strain gauge load cell works.	L1	CO4	1,2,3,4
8	Write the principle of measuring torque using slotted discs.	L1	CO4	1,2,3,4
9	What are driving dynamometers?	L2	CO4	1,2,3,4
10	What are transmission dynamometers?	L2	CO4	1,2,3,4
<b>Part – B (Long Answer Questions)</b>				
11	a) With a neat diagram explain unbounded strain gauges. And also write its advantages and limitation.	L2	CO4	1,2,3,4
	b) With a neat diagram explain fine wire strain gauges. And also write its advantages and limitation.		CO4	
12	a) Briefly discuss on the surface preparations and bonding techniques for mounting bonded strain gauges.		CO4	
	b) List the essential characteristics required for backing material of bonded strain gauges.	L2		1,2,3,4
13	a) With a neat diagram explain elastic force meter. And also write its advantages and limitation.	L2	CO4	1,2,3,4
	b) With a neat diagram explain strain gauge load cell. And also write its advantages and limitation.	L2	CO4	1,2,3,4
14	a) With a neat diagram explain electrical torsion meter. And also write its advantages and limitation.	L2	CO4	1,2,3,4
	b) With a neat diagram explain strain gauge torsion meters. And also write its advantages and limitation.		CO4	
15	a) With a neat diagram explain working principle of mechanical dynamometer. And also write its advantages and limitation.	L3	CO4	1,2,3,4
	b) With a neat diagram explain working principle of hydraulic friction dynamometer. And also write its advantages and limitation.		CO4	
16	a) With a neat diagram explain working principle of sling psychrometer. And also write its advantages and limitation.	L3	CO4	1,2,3,4
	b) With a neat diagram explain working principle of absorption hygrometer. And also write its advantages and limitation.		CO4	

## UNIT V

<b>Part – A (Short Answer Questions)</b>					
S.No.	Question		BT	CO	PO
1	What is control system?		L1	CO5	1,2,3,4
2	Define the terms in controlled media and controlled variable.		L1	CO5	1,2,3,4
3	What are error detectors?		L1	CO5	1,2,3,4
4	Explain the meaning of control action. List the common modes of control.		L1	CO5	1,2,3,4
5	List the basic elements of a feed back control system		L1	CO5	1,2,3,4
6	What is a servo mechanism?		L2	CO5	1,2,3,4
7	What are the basic elements of a mechanical system?		L1	CO5	1,2,3,4
8	What are pneumatic system?		L1	CO5	1,2,3,4
9	List the standard test signal.		L2	CO5	1,2,3,4
10	What is meant by order of the system?		L2	CO5	1,2,3,4
<b>Part – B (Long Answer Questions)</b>					
11	a)	Briefly discuss on AC and DC servomotors.	L2	CO5	1,2,3,4
	b)	With a neat sketch differentiate feed-back and non feed back control system.		CO5	
12	a)	Describe, with block diagram, the following closed loop systems (i) Automobile Steering System (ii) Biological control system	L2	CO5	1,2,3,4
13	a)	Draw the schematics and block diagram of a system representing boiler fitted with speed governor	L2	CO5	1,2,3,4
	b)	Explain how multiposition is different from two position control	L2	CO5	1,2,3,4
14	a)	With a neat block diagram explain closed loop steam boiler system.	L2	CO5	1,2,3,4
	b)	Briefly explain photo electric controls		CO5	
15	a)	Differentiate Open and closed loop control systems with a suitable example	L3	CO5	1,2,3,4
16	a)	Write short note on the transfer function.	L3	CO5	1,2,3,4