Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following. 10 Marks
   a) Enlist the different types of load cell
   b) State the functions of ‘Dynamometer’
   c) Name metals used for Bimetallic strip
   d) Enlist the selection criteria for flow meter
   e) Classify the strain measurement methods
   f) List the different applications of “Load Cell”
   g) Classify Tachometers

Q.2) Attempt any THREE of the following. 12 Marks
   a) Explain term- Dead zone and Hysteresis
   b) Compare Infra-red sensor and Frequency Modulation transmitter
   c) Explain the working of ‘Pirani Gauge’ with neat sketch
   d) Describe the working principle of ‘Oscillating piston flow meter’

Q.3) Attempt any THREE of the following. 12 Marks
   a) Distinguish between Threshold and Resolution
   b) List the factors depends on selection of transducer for specific application? Explain with suitable example
   c) Explain the construction of Quartz Force sensor
d) Describe with sketch the working principle of ‘Thermistor’

Q.4) Attempt any THREE of the following. 12 Marks

a) Draw creep curve for force transducer? State its significance
b) Compare between Diaphragm and Bellows
c) Describe the working principle of ‘Liquid in gas Thermometer’
d) Explain the procedure of strain measurement of cantilever beam with neat diagram
e) Write sound level norms for as per API
   i. Air compressor
   ii. Window air conditioner
   iii. IC Engine
   iv. Electric Motor

Q.5) Attempt any TWO of the following. 12 Marks

a) Draw a block diagram of generalized measuring system showing all the elements. State the functions of each element
b) State the applications of Orifice meter, Venturi tube and pitot tube
c) Draw the constructional details of Sling Psychrometer? State its applications

Q.6) Attempt any TWO of the following. 12 Marks

a) Draw and explain the working of ‘Ultrasonic flow meter
b) Draw a block diagram of FFT analyzer? Enlist its 6 major application
c) State the applications of Electro dynamic Microphone and Carbon Microphone
Scheme – I

Sample Test Paper - I

Program Name : Diploma in Mechanical Engineering
Program Code : ME
Semester : Fourth
Course Title : Mechanical Engineering Measurements
Marks : 20       Time: 1 Hour

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.                                      08 Marks
   a) Define Range
   b) Name any two contact and Non-contact transducers
   c) State the working principle of potentiometer
   d) State the functions of ‘Dynamometer’
   e) List the elements of thermocouple
   f) Name metals used for Bimetallic strip

Q.2 Attempt any THREE.                                    12 Marks
   a) Distinguish between Threshold and Resolution
   b) Compare between Dead zone and Dead time with the help of graphical representation
   c) Explain the working of ‘Slip Ring” with neat sketch
   d) Draw the constructional details of ‘Transmission Dynamometer’
   e) Explain with sketch the working principle of “Thermistor’’
   f) Draw a neat sketch of “Pressure Thermometer”? Explain its working
Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. 08 Marks
   a) Name the materials used for orifice plate
   b) State the applications of Ultrasonic flow meter
   c) Define term “Gauge factor”
   d) State the functions of Accelerometer
   e) Classify Tachometers
   f) List different types of Speed Measuring instruments

Q.2 Attempt any THREE. 12 Marks
   a) Explain Hot wire anemometer with neat sketch
   b) State the applications of Orifice meter, Venturi tube and pitot tube
   c) Differentiate between Inductive Pick up and Capacitive Pick up
   d) Draw a labelled sketch of Stroboscope
   e) Describe the working principle of ‘Mechanical tachometer’
   f) Draw the constructional details of Sling Psychrometer? State its applications