Chapter 1 : Introduction to Metrology, Linear and Angular Measurement:

1) Differentiate following terms:
   i. Accuracy and precision
   ii. Line standard and End standard
2) Distinguish between Primary, Secondary, Tertiary and working standards of length
3) State necessity and objectives of metrology.
4) Describe errors and sources of errors.
5) Enlist methods of measurements. Explain Slip gauges with wringing process.
6) Explain with the help of neat sketches the principle and construction of an auto-Collimator
7) Why sine bar is not preferred for angles greater than 45° ? Explain.
8) State the use of (i) Slip gauges , (ii) Dial indicator
9) Explain use of sine bar with neat sketch; also write advantages and limitations of sine bar.
10) Explain Indian Standards of Slip gauges.

Chapter 2: System of Limits, Fits, Tolerance and Gauging:

1) State what is maximum and minimum material limits according to Taylor's principle.
2) Define Basic size, Tolerance and Deviation.
3) Explain with the help of neat sketch the terminology used in relation with the tolerances.
4) What is fit? Explain various types of fit with neat sketches.
5) Explain with neat sketches hole basis and shaft basis system of fits.
6) What is Limit Gauge? Why they are necessary? Give types of Limit Gauges.
7) Write short note on Plug Gauge, Ring Gauge and Snap Gauge.

Comparators:

8) Give classification of comparators and explain Dial indicator with sketch.
9) Classify the Comparators and explain Sigma Comparators with neat sketch.
10) Explain pneumatic comparator and state the advantages and disadvantages
11) With neat sketch explain working of Johansson Mikrocator.
12) List out various characteristics of good comparators
13) Explain the construction and working of LVDT with its advantage and disadvantages.

Chapter 3: Measurement of screw thread and gear:

1) Give the classification of threads. Explain the two-wire method of measuring the effective diameter of a screw thread.
2) Discuss the gear tooth terminology with neat sketch.
3) State the various possible errors on the gear. Explain how circular pitch measuring machine measure circular pitch error of Gear.
4) Give comparison between involute and cycloidal gears.
5) Discuss the elements of screw thread with neat sketch.
6) Explain Tool maker's Microscope with sketch and its applications.

Chapter 4: Measurement systems and basic concepts of measurement methods:

1) Give definitions and concept of accuracy, precision, calibration, threshold, sensitivity, hysteresis, repeatability, linearity, loading effect, system response-time delay.
2) What means of transducer? What are the advantages of electrical transducer to mechanical transducer?
3) Discuss the various types of errors in measuring system.
4) What are the advantages and limitations of a laser interferometer?
5) Explain the working principle of laser interferometer.
6) What is CMM? Explain different configuration of CMM with neat sketch.

Chapter 5: Force, Torque, Pressure, Strain and temperature Measurement:

1) Classify torque and power measurement techniques. Explain torsion bar dynamometer.
2) Explain the followings: i) Optical strain gauges ii) Gauge factor
3) Explain prony brake dynamometer with neat sketch.
4) Explain working of rope brake dynamometer also state advantages and limitation.
5) What is the use of load cell? List types of load cell and explain any one of them in detail.
6) Describe with sketch the construction and working of a RTD. Give advantage and disadvantage of RTD.
7) Explain the principles and types of thermocouples.