VISION

"To excel in the field of technology by creating technocrats with value-based professionalism."

MISSION

- *To provide technical expertise to fulfil the needs of the industry.*
- *To impact ethical values & professional responsibilities.*
- *To achieve excellence in academics.*

SYME

Subject Name: 22342
Assignment No: 1
Course Outcome: CO305.1

Questions.

1. Define Metrology.
2. Define Accuracy and Precision.
3. Differentiate between Systematic error and Random error.
4. Explain Environmental Error, Calibration error
5. Explain the types of Metrology.
6. Need of the inspection in manufacturing industry.
7. Differentiate between accuracy and precision.
8. Define the term sensitivity

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SYME

Subject Name: 22342
Assignment No: 2
Course Outcome: CO305.2

Questions.

1. List Different Measuring standard.
2. Explain the construction and working of Dial indicator with neat sketch.
3. Compare the comparators with Measuring instruments.
4. Prepare a stack of slip gauges for height of 34.468 mm by using set of M45 as given below sketch the arrangement.

Range(mm)	Steps(mm)	Pieces
1.001 to 1.009	0.001	9
1.001 to 1.09	0.01	9
1.1 to 1.9	0.1	9
1 to 9	1	9
10 to 90	10	9

5. Explain the wringing of Slip gauges with neat sketch.
6. Distinguish between Line Standard and end Standard.
7. Draw the labelled diagram of Sigma comparator and explain its working.
8. Draw slip gauge accessories (any two) and describe the use of it.

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SYME

Subject Name: 22342
Assignment No: 3
Course Outcome: CO305.3

Questions.

1. Define the terms a) Tolerance b) Deviation.
2. Explain the meaning of $27H_5F_6$
3. Distinguish between Hole basis system and shaft basis system. (any four)
4. In a limit system, the following limits are specified to give a clearance fit between the shaft and hole.

   Shaft : $30^{-0.005}_{-0.018}$ mm Ø

   Hole : $30^{+0.020}_{-0.000}$ mm Ø

   Determine (i) Basic size (ii) Shaft and hole tolerance (iii) Minimum and maximum clearance.

5. Draw hole and shaft assembly and show (i) Limit (ii) Allowance (iii) Tolerance (iv) Deviation.
6. State the term" Interchangeability
7. Draw the sketches illustrating the transition fit, interference fit and clearance fit.
8. The shaft size is given as $40^{-0.02}_{-0.04}$ and the hole size is $40^{+0.02}_{-0.04}$. Determine the type of fit between them.

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SYME

Subject Name: 22342
Assignment No: 4
Course Outcome: CO305.4

Questions.

1. Explain errors in gear (i) Runout, (ii) Backlash.
2. Describe the working principle of floating carriage micro meter with neat sketch.
3. Describe the procedure of measurement of tooth thickness using Parkinson's gear tester with neat sketch.
4. Explain procedure of minor diameter measurement of screw thread using floating carriage micro meter with neat sketch.
5. List different methods of measuring Tooth Thickness
6. Describe the procedure of measurement of tooth thickness using constant chord method with neat sketch
7. Calculate the diameter of best wire size for M20 x 1.5
8. List different types of errors in Gear
9. Draw a neat labelled sketch of screw thread micro meter. State its principle of working
10. Explain the significance of backlash error and runout error observed in gears. How it is checked ?

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SYME

Subject Name: 22342
Assignment No: 5
Course Outcome: CO305.5

Questions.

1. State the uses of Universal Bevel Protractor.
2. An angle of 117° 8' 42'' is to be developed using standard angle gauge set. Calculate the gauges required and show the arrangement.
3. Describe stepwise procedure carried out in laboratory for small angle measurement with neat sketch.
4. List different Angular measuring devices.
5. List the instruments used for linear measurement according to their level of accuracy in ascending order.
6. An angle of 57°6'9'' is to be developed using standard angle gauge set of (1°, 3°, 9°, 27°, 41°), (1', 3', 9', 27') and (3'', 6'', 18'', 30''). Show the arrangement by sketch. State the advantages and disadvantages of angle gauges.
7. Define the Combination set.
8. Give the applications of V block.
9. Draw neat sketch and explain micro meter depth gauge.
10. Define Clinometer? Explain it's use with suitable figure.

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SYME

Subject Name: 22342
Assignment No: 6
Course Outcome: CO305.6

Questions.

1. Compare alignment test with performance test.
2. Define primary and secondary texture w.r.t. surface finish.
3. List the causes of surface roughness.
4. Define "Lay"
5. Draw the following alignment test of Lathe machine
   a) Parallelism of tail stock b) Run out of spindle
6. State the function of CMM
7. State the principle of Surface roughness Tester
8. In the measurement of surface roughness, heights of 10 successive peaks and valleys were measured from a datum as
   Peaks- 45, 42,40,30,35 microns
   Valleys 30,25,25,24,18 microns
   Determine the Ra Value
9. Explain how the straightness of lathe bed may be checked by using spirit level
10. Explain the method recommended by IS: 3073-1967 for specifying the surface texture on machined parts.

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