

B.E / B.Tech. PRACTICAL END SEMESTER EXAMINATIONS, NOVEMBER / DECEMBER 2023

Fifth Semester

ME3581 - METROLOGY AND DYNAMICS LABORATORY

(Regulations2021)

Time : 3 Hours

Answer any one Question

Max. Marks 100

Aim, Apparatus required, Procedure	Tabulation/ Drawing	Calculation & Results	Viva- Voce	Record	Total
20	30	30	10	10	100

1.	Measure the dimensions of given component using vernier caliper. Also calibrate the vernier caliper with standard slip gauges. Plot graph.
2.	Determine the taper angle of given component using sine bar and compare the results with bevel protractor.
3.	Measure the screw thread parameters using tool maker's microscope.
4.	Draw the gear profile with nomenclature and measure gear tooth dimensions with gear tooth vernier.
5.	Measure the V-Block parameters using Bevel protractor, Vernier depth gauge, Vernier depth gauge.
6.	Determine various features in a prismatic component using Coordinate Measuring Machine (CMM).
7.	Measure effective diameter, major diameter, minor diameter, thread angle, and pitch of given bolt using profile projector.
8.	Check the straightness and flatness of the surface plate using auto collimator.
9.	Determine the surface roughness of the given workpiece using surface roughness tester.
10.	Measure the major, minor and effective diameter of the given thread using three wire method.
11.	Determine the range of speed and sensitiveness of watt governor. Also draw its characteristics curve.

12.	Find the range of speed and sensitiveness of porter governor. Also draw its characteristics curve.
13.	Calculate the range of speed and sensitiveness of proell governor. Also draw its characteristics curve.
14.	Analyze the gyroscopic effect using gyroscope by varying the weights.
15.	Determine the natural frequency of the single rotor setup.
16.	Conduct dynamic analysis of cam follower system.
17.	Explain in detail about the gear parameters and epicyclic gear train with neat sketch and demonstrate it.
18.	Find the moment of inertia using flywheel and axle system.
19.	Determine the mass moment of inertia of the given body about its axis of symmetry.
20.	Find the whirling speed of shafts for a minimum of two shafts.