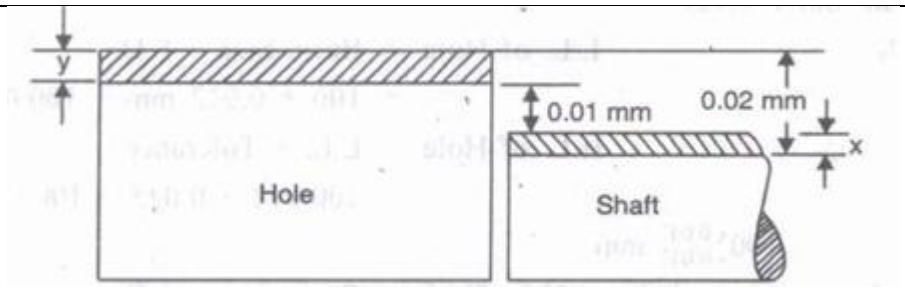
Name: **Enrolment No:**	

UPES Dehradun
End Semester Examination, May 2025

Course: Manufacturing Technologies **Semester: VI**
Program: B.Tech (Mechatronics Engineering) **Time : 03 hrs**
Course Code: MECH3056 **Max. Marks: 100**

SECTION A
(5Qx4M=20Marks)

S. No.	Statement of question	Marks	CO
Q 1	Define solid patterns and split pattern used in casting process with neat diagram.	**4**	**CO1**
Q 2	Explain the working principle of slip gauges.	**4**	**CO1**
Q 3	Compare the vernier caliper and micrometer used for linear measurement.	**4**	**CO4**
Q 4	Outline the terms limit, fits and tolerances.	**4**	**CO1**
Q 5	Analyze the various types of errors used in gear metrology.	**4**	**CO4**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	Explain project scheduling. Discuss various steps included in project scheduling.	**10**	**CO2**
Q 7	Distinguish the working of Universal Bevel Protractor and Sine bar with neat diagram.	**10**	**CO4**
Q8	Classify various types of gauges. Discuss the Taylor principle of gauging.	**10**	**CO3**
Q9	Examine the principle of micrometer instruments. Discuss the working of outside micrometer with neat diagram.	**10**	**CO4**
	SECTION-C **(2Qx20M=40 Marks)**		
Q10	A hole and shaft have a basic size of 25 mm and are to have a clearance fit with a maximum clearance of 0.02 mm and a minimum clearance of 0.01mm. The hole tolerance is to be 1.5 times the shaft tolerance. Determine: limit for both hole and shaft (a) using a hole basis system (b) using a shaft basis system.	**20**	**CO2**

			
Q11	Compare the working principle of Laser Beam Machining and Electron Beam Machining processes with neat diagram. OR Analyze various types of defects in the casting process with neat diagrams. Also discuss various techniques to measure casting defects.	**20**	**CO3**