Code No: RT31036 **R13** SET - 1

III B. Tech I Semester Supplementary Examinations, May- 2016
METROLOGY
(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1	a)	Write the differences between the unilateral and bilateral system.	[3M]
	b)	State the principle of micrometer and its least count.	[3M]
	c)	State the principle of interference.	[3M]
	d)	Define the terms roughness, waviness, lay, flaws and roughness width.	[5M]
	e)	Calculate the setting of gear tooth Vernier to inspect a gear having 35 teeth and module 5mm.	[4M]
	f)	List out different alignment tests for lathe.	[4M]

PART -B

2	a)	Explain briefly different types of fits with necessary sketches.	[8M]
	b)	Explain briefly about interchangeable manufacturing and selective assembly.	[8M]
3	a)	Explain the construction and use of Vernier bevel protractor with a neat sketch.	[8M]
	b)	Explain the following in connection with gauge design: (i) Gauge tolerance (ii) Wear allowance.	[8M]
4	a)	Explain briefly about optical projector with a neat sketch.	[8M]
	b)	List the different types of Interferometers and explain about Michelson Interferometer.	[8M]
5	a)	Name and describe the various numerical methods of assessment of surface Finish.	[8M]
	b)	Compare between electrical comparator and mechanical comparator.	[8M]
6	a)	Explain measuring the gear tooth thickness using chordal thickness method.	[8M]
	b)	Describe with neat sketches two wire method of measuring the effective diameter of a screw threads.	[8M]
7	a)	Explain with the help of neat sketch the principle and construction of an auto collimator.	[8M]
	b)	What is meant by alignment tests on machine tools? Why they are necessary? Explain.	[8M]

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