

31.05.2013 FN

III-I Supply

L8B

R09

Code No: 09A50302

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, May/June – 2013

Metrology and Surface Engineering
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Do you think interchangeability reduces number of rejects. Justify your answer.
- b) Differentiate between hole basis system and shaft basis system. [15]
- 2.a) What is a Sine bar? Explain how it can be used to set a component to a given angle.
- b) Explain the construction and working of a bevel protractor. [15]
3. Explain the working principle of tool maker's microscope. What are the uses and specific applications of tool maker's microscope? Explain. [15]
- 4.a) Explain why the Ra or Rz numbers alone are not sufficient to specify the surface texture required and state other information is required to be given. Give an example of the method used on a drawing to specify the required texture.
- b) Discuss the various methods of measuring the surface texture giving their relative advantages. [15]
- 5.a) What are the uses and advantages common to all comparator?
- b) Explain the system of displacement and amplification used in mechanical comparator. [15]
- 6.a) What is the effect of pitch error on effective diameter?
- b) Explain how major diameter of external thread can be measured using bench micrometer. [15]
- 7.a) How surface texture is related to tolerances on a surface dimensions?
- b) Discuss about various wear measuring techniques. [15]
8. With the help of a neat diagram explain the process of ion implantation. Discuss about the control parameters. [15]
