

Code No: R05320302

Set No. 4

**III B.Tech II Semester Regular Examinations, Apr/May 2008**  
**METROLOGY AND SURFACE ENGINEERING**  
**(Mechanical Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) With the help of sketch describe a vernier type micrometer. How do you calculate its least count?  
(b) Why is it necessary to check the flatness of the measuring faces of a micrometer and explain with an example? [8+8]
2. Explain the Taylor's principle of limit gauging, with reference to gauging of rectangular holes. Discuss the effect of violating the Taylor's principle? [16]
3. (a) What are the measuring techniques employed in optical projector?  
(b) Discuss the most common aberrations found in optical projector? [8+8]
4. What are the requirements of a good comparator? Explain, with the help of a neat sketch how these features are achievable in the "Sigma Comparator". [16]
5. (a) How is Taylor's principle of limit gauging applicable to gauging of screw threads.  
(b) What are the elements required to be measured for determination of the accuracy of screw threads? Explain. [8+8]
6. Describe the following alignment tests on a pillar drilling machine.  
(a) Square ness of the spindle axis with table.  
(b) Perpendicularity of drill guide to the table. [8+8]
7. Explain with the help of sketches the working principles of the instruments used in checking of profile and base pitch of the gear. [16]
8. Explain the terms Dip coating and Spray coating. Distinguish between these two processes. Compare the merits and demerits. [16]

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