

Code No: **R32031****R10****Set No. 1****III B.Tech II Semester Supplementary Examinations, April -2017****METROLOGY****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 75**

**Answer any FIVE Questions**  
**All Questions carry equal marks**  
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- 1 a) Explain the following terms  
i) Selective assembly ii) Interchangeability iii) Limits and fits.  
b) What is meant by tolerance? Explain hole basic and shaft basic system?
- 2 Explain various methods of measuring angles and tapers.
- 3 a) Explain in detail various types of optical measuring instruments.  
b) Describe the measurement of flatness by using auto collimates?
- 4 a) Explain the terms (i)  $R_t$  value and (ii) CLA value of roughness.  
b) Describe various method of measuring surface finish?
- 5 a) Differentiate between mechanical, optical and pneumatic comparators?  
b) Briefly describe electrical and electronic comparators?
- 6 Explain the following: i) measuring instruments for tooth thickness.  
ii) Instrument to measure surface finish.
- 7 a) Briefly explain the concept of virtual effective diameters?  
b) Explain at least two methods to calculate effective diameter.
- 8 Explain tool alignment test for  
i) Drilling and ii) Milling machine

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