

22673

M.Tech. 3rd Semester (MAE) (CBSC Scheme)

Examination, December-2018

ADVANCED METROLOGY AND CALIBRATION

Paper- 16MMA 23C1

*Time allowed : 3 hours]*

*[Maximum marks : 100*

*Note: Students are required to attempt any five questions.  
The students have to attempt first common question,  
which is compulsory and one question from each of  
four units.*

1. (a) Shaft basis system of tolerance.
- (b) Surface texture parameters.
- (c) Various types of micrometer.
- (d) What do you mean by Calibration?
- (e) What is dial guage?
- (f) Purpose of depth-micrometer.
- (g) Profile projector.
- (h) List measuring instrument for flatness.

$2\frac{1}{2} \times 8 = 20$

**Unit-I**

2. Write about:
  - (a) Fundamental deviation and its calculation. 10
  - (b) Tolerance position and tolerance for bolt and nut. 10
3. Write in detail about surface errors. 20

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**Unit-II**

4. Discuss
- (a) Laser Micrometer. 10
  - (b) Various grades of slip gauges. 10
5. What is an Auto-collimator? What is its application? Explain its constructional details, working procedure and underlying principle. 20

**Unit-III**

6. Discuss about
- (a) Tool maker microscope. 10
  - (b) Optical flats. 10
7. Write about
- (a) Depth - micrometer. 10
  - (b) Surface plate. 10

**Unit-IV**

8. What is a Vernier Caliper? Discuss in detail with neat sketches. 20
9. Write notes on
- (a) Calculation of uncertainty. 10
  - (b) Co-ordinate measuring machine. 10