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BME-062

DIPLOMA IN MECHANICAL ENGINEERING (DME)

Term-End Examination

00700

June, 2016

BME-062 : METROLOGY AND INSTRUMENTATION

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks.*

1. Define the following : *7×2=14*

(a) Actual size and True size

(b) Hysteresis

(c) Span and Range of measurement

(d) Tolerances and Allowances

(e) Sensitivity and Least Count

(f) Accuracy and Precision

(g) Static and Dynamic response

2. (a) Describe the relative advantages of micrometers and vernier callipers. Give their limitations also. *7*

(b) How are the major and minor diameters of thread measured ? *7*

3. (a) Explain a method used in the measurement of surface finish and flatness. 7

(b) Define various terminologies related with screw gears. 7

4. (a) What is the constructional difference between an autocollimator and an angle dekkor ? 7

(b) Explain the working principle of opto-mechanical comparator with a neat sketch. 7

5. (a) Explain the different types of errors. 7

(b) What are the different structures that the body of a coordinate measuring machine can have ? Explain briefly. 7

6. (a) What is meant by calibration ? What are the primary standards of length and time ? Mention the procedure of callibrating a pressure gauge. 7

(b) What are the various light sources commonly used in interferometry ? Can we use ordinary light as a source of light in interferometry ? Explain in detail. 7

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Hole and Shaft

(b) Spirit Level

(c) Gauges

(d) Vernier Height Gauge

(e) Zero Error in Micrometer

(f) Clinometer