313316

12526

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) List down different instruments used for linear measurement.

b) Define wavelength standard and give its one application.

c) Define Interchangeability ?

d) Draw a labeled diagram of bevel protractor.

e) Draw a neat labeled sketch of gear tooth vernier.

f) Define transducer.

g) State types of tachometer.

P.T.O.

Marks

2. Attempt any THREE of the following : **12**

a) List down different categories of metrology. State specific use of each of them.

b) State Taylor's principle of gauge design. State its significance.

c) Describe angle gauges. State the procedure to set the gauges.

d) State principle of three wire method. Where it is used ?

3. Attempt any THREE of the following : **12**

a) Define the following terminologies for surface finish –

i) Primary texture

ii) Secondary texture

iii) Lay

iv) Sample length

b) Suggest and describe the constructional and operational aspects of the instrument you would use to measure the pitch of a screw thread.

c) Describe Parkinson Gear tester with neat sketch.

d) Draw a block diagram of the sub-system elements that form a complete LVDT length measuring system.

4. Attempt any THREE of the following : **12**

a) How flow can be measured as a

i) Volumetric quantity ?

ii) Instantaneous velocity ?

b) Explain flow measurement by variable area Rotameter.

c) Explain a contactless technique for speed measurement.

d) Draw a neat schematic of force measurement using hydraulic load cell.

e) List and define any four sound characteristics.

Marks

5. Attempt any TWO of the following : **12**

a) Describe the different sources of errors in measurements and measuring instruments.

b) Differentiate between line standard and end standard. Give one application of each of them.

c) Differentiate between a comparator and a measuring instrument (at least three points)

6. Attempt any TWO of the following : **12**

a) State the meaning of wringing of slip gauges. Write precautions to be taken while using slip gauges.

b) Draw a neat labeled sketch of screw thread micrometer and state its principle of working.

c) Classify the temperature measuring instruments and indicate approximate temperature range of each category.

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