

AU/IP/IEM/PR - 503

B.E. V Semester

Examination, December 2015

Metrology Measurement And Control

Time : Three Hours

Maximum Marks : 70

- Note:** i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
 ii) All parts of each questions are to be attempted at one place.
 iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
 iv) Except numericals, Derivation, Design and Drawing etc.

- ☒ a) State in brief the standards of measurement.
☒ b) Explain errors generally encountered in measurement.
☒ c) Define with neat sketches Limits Fits and Tolerances.
☒ d) Define Limit Gauging. How gauges differ from measuring instrument? State design considerations of Gauges.

OR

Write short notes on following:

- i) Calibration of instruments
 ii) Interferometer

RGPVONLINE.COM

- ☒ a) State the classification of Linear and angular measuring instruments.
☒ b) What are slip gauges? State grades of accuracy for slip gauges.
☒ c) Compare merits and de-merits of mechanical, electrical and optical comparators.
☒ d) Draw a neat sketch of Dial Gauge and Micrometer showing each element.

[2]

OR

Write short note on measurement of straightness, flatness and squareness.

- ☒ a) State the types of surface textures.
☒ b) What measurement of run-out and concentricity is done? Discuss.
☒ c) Discuss length bar measuring machine.
☒ d) Discuss in detail any two Surface Roughness measurement methods.

OR

Write short note on tool maker's microscope with neat sketch.

RGPVONLINE.COM

- ☒ a) State briefly the Screw thread terminology.
☒ b) What are the various elements of measurement in gears? Discuss.
☒ c) Discuss briefly about the gear tester.
☒ d) Discuss in detail Base Tangent Method of gear measurement.

OR

☒ Explain Two wire and Three wire methods of screw thread measurement.

- ☒ a) Define the term "Laser metrology". State its importance.
☒ b) Explain briefly the Co-ordinate Measuring Machine (CMM).
☒ c) Discuss briefly about the Laser interferometer.
☒ d) Discuss in detail the non-contact and in-process inspection.

OR

☒ Explain about Laser micrometer and Laser scanning Gauge.