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Question Paper Code: 56702

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Sixth Semester

Mechanical Engineering

15UME602- ENGINEERING METROLOGY AND MEASUREMENTS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following is the most important characteristic of a measuring instrument in general CO1- R
(a) Precision (b) Accuracy (c) Repeatability (d) Sensitivity
2. The ability by which a measuring device can detect small difference in the quantity being measured by it, is called its CO1- R
(a) Damping (b) Sensitivity (c) Accuracy (d) Precision
3. A dial indicator is connected with the CO2- R
(a) Movable anvil (b) Blade types micrometer
(c) V- anvil (d) Micrometer
4. The thread micrometer measures CO2- R
(a) The major diameter of the thread (b) The minor diameter of the thread
(c) The effective diameter of the thread (d) The root diameter of the thread
5. Angle included between the flanks of a CO3- R
(a) Thread measurement (b) crest
(c) Root (d) screw thread

6. If the correctness of profile of a thread is to be checked, which instrument would you choose CO3- R
- (a) Bench micrometer (b) Optical projector
(c) Sine bar (d) telescopic gauge
7. In the term LASER 'A' stands for CO4- R
- (a) Amplification (b) Amplitude (c) Acceleration (d) None of the above
8. The CMM used for measure CO4- R
- (a) One dimensional measurements (b) Two dimensional measurements
(c) Three dimensional measurements (d) Four dimensional measurements
9. Proving Ring is used to measure CO-5 R
- (a) Angle (b) Temperature (c) Mass (d) Force
10. Rotometer is used for measuring _____ CO5- R
- (a) Flow rate of fluid (b) force (c) anemometer (d) None

PART – B (5 x 2= 10Marks)

11. Differentiate between precision and accuracy. CO1- R
12. State the various uses of angle dekker. CO2- R
13. What is secondary texture of a surface? CO3- R
14. Why the laser is used in alignment testing? CO4- R
15. Mention any four advantages of column type CMM CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Draw the block diagram of a generalized measurement system and explain its various elements. CO1-U (16)
- Or
- (b) With suitable examples, explain how flow measuring instruments are calibrated by the primary and secondary calibration methods? CO1-U (16)
17. (a) Explain with a neat sketch how a Vernier caliper is used for linear measurements. CO2-U (16)
- Or
- (b) List the various comparators and explain any two. CO2-U (16)

18. (a) Briefly explain any one method of measurement the gear tooth thickness CO3-U (16)
- Or
- (b) How are the major and minor diameters of threads measurement CO3-U (16)
19. (a) Discuss laser telemetric system with suitable diagram. CO4- U (16)
- Or
- (b) Name the various types of CMM and explain. CO4- U (16)
20. (a) With neat sketch explain the construction and working principle of vapour pressure thermomter CO5 U (16)
- Or
- (b) Describe with neat sketches thermocouples. CO5 U (16)

