

2112E126

SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

- Q1. What do you mean by standard of an instrument? Explain various types of measuring standards considered in metrology.
- Q2. What are the industrial applications of a micrometer and determine its least count.
- Q3. What is the meaning of fits, tolerance and allowance in case of shaft and hole.
- Q4. In a limit system, the following limits are specified for a hole and shaft assembly:
Hole = $30^{+0.02}_{-0.00}$ mm and shaft = $30^{-0.02}_{-0.05}$ mm.
Determine: (i) tolerance and (ii) allowance.
- Q5. How you can determine the straightness and flatness in case of machine tool metrology.
- Q6. Which types of factors are affecting surface roughness explain in brief.
- Q7. Write a short note on Direct and Indirect measurement.
- Q8. Explain the following terms:
(i) Accuracy and precision
(ii) Resolution and threshold

===End of Paper===

BACHELOR OF VOCATION
Production-Tool and Die Manufacturing
Subject: Measurement and Metallurgy
Subject Code: ME-503
Semester: Third
December 2021
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number

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SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A. Device used for angular measurement is:
(a) Steel rule
(b) Vernier caliper
(c) Sine bar
(d) Micrometer
- B. GO and NO GO gauge is a type of
(a) Plug gauge
(b) Ring gauge
(c) Slip gauge
(d) Limit gauge
- C. A manometer is used to measure:
(a) Atmospheric pressure
(b) Pressure in pipe and channels
(c) Pressure in venturimeter
(d) Difference of pressures between two points in a pipe
- D. Normal temperature of human body is:
(a) 98.2 °F
(b) 98.4 °F
(c) 98.6 °F
(d) 98.8 °F
- E. The degree of closeness of the observed value with the true value is known as:
(a) Accuracy
(b) Precision
(c) Error
(d) Sensitivity
- F. RPM of a rotating shaft can be measured by:

- (a) Speedometer
(b) Odometer
(c) Tachometer
(d) Lactometer
- G. The term "Allowance" is usually referred to:
(a) Minimum clearance between shaft and hole
(b) Maximum clearance between shaft and hole
(c) A difference of tolerance between shaft and hole
(d) Difference between maximum size and minimum size of the hole
- H. The diameters of the hole and the shaft are $50^{+0.05}$ and $50^{-0.04}$ mm respectively, the fit is a:
(a) Interference fit
(b) Transition fit
(c) Clearance fit
(d) Given data is not sufficient
- I. The surface Roughness on a drawing is represented by
(a) Square
(b) Rectangle
(c) Triangle
(d) Circle
- J. Pitch in case of screw threads is defined as:
(a) Total length of the threaded portion of the screw
(b) Maximum diameter of the screw
(c) Minimum diameter of the screw
(d) Distance between adjacent threads