

Exam. Code: 0944
Sub. Code: 6748

2023
B.E. (Mechanical Engineering)
Eighth Semester
MEC-804: Metrology

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Attempt the following:-
- What are environmental errors. Give one example.
 - Define the term Metrology. State its any two objectives.
 - State Abbe principle of alignment.
 - Define the terms Pitch and lead of a thread.
 - Name the methods used for measuring the gear tooth thickness. (5x2)

UNIT - I

- II. a) With the help of suitable example explain (i) Line standard (ii) End standard (iii) Wavelength standard.
- b) What is wringing of slip gauges. Build the dimension 87.1025 using M-112 set. (2x5)
- III. a) Explain the working principle of optical measuring instruments. Explain the working of a optical prism.
- b) Write a detailed note on the importance and need of interchangeability and Standardization. (2x5)
- IV. What is a comparator? Explain the working of a electrical comparator. (10)

UNIT - II

- V. a) Sketch and Interpret the meaning of various interference fringes patterns observed using optical flat,
- b) Explain the working of the Auto-collimator to measure straightness. (2x5)

P.T.O.

(2)

- VI. a) Derive an expression for best wire size for screw thread measurement.
b) With the help of a neat sketch explain the spur gear teeth terminology. (2x5)
- VII. a) Explain the following alignment test of Lathe machine with the help of neat sketches:
i) Parallelism of tail stock
ii) Run-out of spindle
b) Explain the importance of surface finish. Describe one method to measure surface finish of machined part. (2x5)

x-x-x