UNITY TRAINING
ACADEMY FOR DDCET

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Practice Set 4 Solution

Units & MEASUREMENT

Topics :
3. Errors, Estimation of error, relative error, percentage error, propagation of errors.
4. Measurement with Vernier caliper and micrometer screw gauge.

DDCET final exam weightage of this topic : 3 Questions (6 Marks)

Total Practice sets of this topic : 10 (sets) x 25 (questions) = 250 Questions

Total Practice tests of this topic : 2 (exams) x 25 (questions) = 50 Questions

Offline / Online during lecture : 4 (lectures) X 50 (Questions) = 200 Question

DDCET 2025

Total 500 Questions to practice this topic

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UNITY TRAINING ACADEMY FOR DDCET

Section 1 :

3. Errors, Estimation of error, relative error, percentage error, propagation of errors.
4. Measurement with Vernier caliper and micrometer screw gauge.

1. The difference between the true value and the measured value of a quantity is called:

A) Accuracy
B) Precision
C) Error ✓
D) Resolution

2. Errors that tend to occur in one direction (either positive or negative) are called:

A) Random errors
B) Systematic errors ✓
C) Gross errors
D) Instrumental errors

3. Errors that occur irregularly and randomly in magnitude and direction are called:

A) Systematic errors
B) Constant errors
C) Random errors ✓
D) Absolute errors

4. If the true value of a length is 10.0 cm and the measured value is 9.8 cm, the absolute error is:

A) 0.2 cm
B) -0.2 cm ✓
C) 19.8 cm
D) 9.8 cm

5. If a micrometer has a zero error of +0.02 mm, the correction to be applied is:

A) +0.02 mm
B) -0.02 mm ✓
C) +0.01 mm
D) -0.01 mm

6. The ratio of the absolute error to the true value is called:

A) Percentage error
B) Relative error ✓
C) Systematic error
D) Random error

7. If the absolute error in a measurement is 0.1 cm and the true value is 5.0 cm, the relative error is:

A) 0.01
B) 0.02 ✓
C) 0.1
D) 0.2

8. The relative error expressed as a percentage is called:

A) Absolute error
B) Mean error
C) Percentage error ✓
D) Fractional error

9. If the relative error in a measurement is 0.05, the percentage error is:

A) 0.05%
B) 0.5%
C) 5% ✓
D) 50%

10. In an experiment, the measurements of a length are 2.1 cm, 2.2 cm, 2.0 cm, 2.3 cm, and 2.1 cm. The mean value of the length is:

A) 2.1 cm
B) 2.14 cm ✓
C) 2.15 cm
D) 2.2 cm

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11. To measure the diameter of a thin wire accurately, one should use a:

A) Meter scale
B) Vernier caliper
C) Micrometer screw gauge ✓
D) Measuring tape

12. To minimize random errors in an experiment, one should:

A) Use a more sophisticated instrument.
B) Take multiple readings and find their mean. ✓
C) Eliminate the source of systematic errors.
D) Be very careful while taking readings.

13. Zero error in an instrument is a type of:

A) Random error
B) Systematic error ✓
C) Gross error
D) Parallax error

14.The range of a typical micrometer screw gauge is usually:

A) 0-1 mm
B) 0-10 mm
C) 0-25 mm ✓
D) 0-50 mm

15. The principle of a micrometer screw gauge is based on:

A) Reflection
B) Refraction
C) Screw and nut mechanism ✓
D) Electromagnetic induction

16. Which instrument generally provides a more precise measurement?

A) Meter scale
B) Vernier caliper
C) Micrometer screw gauge ✓
D) Measuring tape

17. The part of the Vernier caliper used for measuring the internal diameter of a hollow cylinder is:

A) Main scale
B) Vernier scale
C) Lower jaws
D) Upper jaws ✓

18. The part of the Vernier caliper used for measuring the depth of a beaker is:

A) Main scale
B) Vernier scale
C) Lower jaws
D) Depth gauge ✓

19. While using a Vernier caliper, the zero error is positive if the zero mark of the Vernier scale is:

A) To the right of the zero mark of the main scale. ✓
B) To the left of the zero mark of the main scale.
C) Coincides with the zero mark of the main scale.
D) Anywhere on the main scale.

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20. The pitch of a micrometer screw gauge is defined as:

A) The total length of the screw.
B) The distance moved by the screw for one complete rotation of the thimble. ✓
C) The number of divisions on the thimble scale.
D) The least count of the instrument.

21. In a micrometer screw gauge, the spindle is moved by rotating the:

A) Sleeve
B) Thimble ✓
C) Ratchet
D) Main scale

22. If the absolute error is 0.2 and the true value is 40, the relative error is:

A) 0.005 ✓
B) 0.05
C) 0.5
D) 5

23. A student measures the length of a rod as 25.5 cm, while the actual length is 25.0 cm. The percentage error is:

A) 0.5%
B) 1%
C) 2% ✓
D) 5%

24. Random errors can be minimized by:

A) Taking multiple readings and averaging
B) Calibrating the instrument
C) Using a more precise instrument
D) Both (a) and (c) ✓

25. The range of a typical Vernier caliper is usually:

A) 0-1 cm
B) 0-10 cm ✓
C) 0-25 cm
D) 0-50 cm