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Practice **Set 3**

Units & **MEASUREMENT**

Topics :

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

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

Total Practice sets
of this topic :

$10 \text{ (sets) } \times 25 \text{ (questions) } = 250 \text{ Questions}$

Total Practice tests
of this topic :

$2 \text{ (exams) } \times 25 \text{ (questions) } = 50 \text{ Questions}$

Offline / Online
during lecture :

$4 \text{ (lectures) } \times 50 \text{ (Questions) } = 200 \text{ Question}$

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. Which of the following is a random error?
 - A) Instrumental error
 - B) Personal error
 - C) Least count error
 - D) Fluctuations in temperature
2. The absolute error is the:
 - A) Square of the error
 - B) Ratio of error to the actual value
 - C) Difference between measured and true value
 - D) Product of error and true value
3. If a value is measured as 20 cm and the error is ± 2 cm, the relative error is:
 - A) 10%
 - B) 20%
 - C) 5%
 - D) 15%
4. Which of the following cannot reduce systematic errors?
 - A) Taking multiple readings
 - B) Calibrating instruments
 - C) Using correct formula
 - D) Removing zero error
5. If a measurement has a large number of significant figures, it has:
 - A) Greater error
 - B) Greater accuracy
 - C) Greater uncertainty
 - D) Greater deviation
6. The maximum error in the product of two measurements is:
 - A) Sum of relative errors
 - B) Product of absolute errors
 - C) Square of error
 - D) Sum of absolute errors
7. Percentage error is:
 - A) $(\text{Absolute Error} / \text{Actual Value}) \times 100$
 - B) $(\text{Measured Value} / \text{Actual Value}) \times 100$
 - C) $\text{Absolute Error} \times 100$
 - D) $\text{Actual Value} \times 100$
8. The least count of an instrument affects:
 - A) Systematic error
 - B) Personal error
 - C) Random error
 - D) Instrumental error
9. Which of the following is an example of a systematic error?
 - A) Human reaction time
 - B) Zero error in an instrument
 - C) Fluctuation in temperature
 - D) Parallax error
10. In addition of measurements, the absolute error is:
 - A) Added
 - B) Multiplied
 - C) Subtracted
 - D) Divided





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11. When subtracting two quantities, the maximum possible error is:

- A) Sum of absolute errors
- B) Difference of errors
- C) Product of errors
- D) Ratio of errors

12. The number of significant figures in 0.004506 is:

- A) 4
- B) 5
- C) 6
- D) 3

13. The term "precision" in measurements refers to:

- A) Closeness to true value
- B) Reproducibility of results
- C) Largest value measured
- D) None of these

14. Repeated measurements improve:

- A) Accuracy only
- B) Precision only
- C) Both accuracy and precision
- D) Neither accuracy nor precision

15. In multiplication/division, how do you calculate percentage error?

- A) Add percentage errors
- B) Subtract percentage errors
- C) Multiply absolute errors
- D) Take root of sum of squares

16. The least count of a vernier caliper is:

- A) 0.01 cm
- B) 0.1 cm
- C) 1 mm
- D) 0.001 cm

17. The total number of divisions on the main scale in vernier caliper is usually:

- A) 10
- B) 100
- C) 1
- D) 9

18. A zero error in a vernier caliper affects:

- A) Only small measurements
- B) All measurements equally
- C) Only large measurements
- D) None of these

19. Positive zero error means:

- A) Vernier scale is ahead of the main scale
- B) Vernier scale is behind the main scale
- C) Both scales coincide
- D) None of these

20. The least count of a micrometer screw gauge is:

- A) 0.01 mm
- B) 0.1 mm
- C) 1 mm
- D) 0.5 mm





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21. In screw gauge, pitch is:

- A) Distance moved per one rotation
- B) Total distance of travel
- C) Least count
- D) Screw diameter

22. The formula for least count of screw gauge is:

- A) Pitch / number of divisions
- B) Pitch \times number of divisions
- C) Radius / time
- D) Pitch \times time

23. Zero error correction is done by:

- A) Adding it always
- B) Subtracting if positive
- C) Subtracting if negative
- D) Based on sign

24. A negative zero error in screw gauge means:

- A) Error to be added
- B) Error to be ignored
- C) Error to be subtracted
- D) No error

25. Vernier caliper can measure:

- A) Only external diameters
- B) Only internal diameters
- C) Only depth
- D) All of the above

