Yakeen NEET 2.0 2026

Physics by Manish Raj Sir

Units and Measurements

Assignment-03
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1. If temperature T_1 = (340K ± 5K) and T_2 = (300K ± 10K). Find error in temperature difference?

(1) 50K
(2) 40K
(3) 15K
(4) 5K

2. In an experiment four quantities *a*, *b*, *c* and *d* are measured with percentage error 1%, 2%, 3% and 4% respectively. Quantity *P* is calculate as follows: $P = \frac{a^3b^2}{cd}$, % error in *P* is

(1) 10% (2) 7%
(3) 4% (4) 14%

3. The temperature of two bodies measured are θ_1 = 10°C ± 0.4°C and θ_2 = 40°C ± 0.3°C. Find the sum and difference in temperature with error limit.

4. Percentage error in measuring the radius and mass of a solid sphere are 2% and 1% respectively. Then error in measurement of moment of inertia with respect to its diameter is:

(1) 3% (2) 6%
(3) 5% (4) 4%

5. The resistance of a conductor R = V/I where V = (50 ± 2) volt and I = (9 ± 0.3) Amp, find percentage error in R. Also find absolute error in R.

6. If percentage error in speed and mass are 1% and 2% then find percentage error in K.E.

7. Find percentage error in length of simple pendulum if percentage error in time is 4% and acceleration due to gravity is 2%.

8. The radius of a sphere is (5.3 ± 0.1) cm. The percentage error in its volume is

(1) $\frac{0.1}{5.3}\times 100$ (2) $3\times\frac{0.1}{5.3}\times 100$
(3) $\frac{3}{2}\times\frac{0.1}{5.3}\times 100$ (4) $6\times\frac{0.1}{5.3}\times 100$

9. If the error in the measurement of radius of a sphere is 2%, then the error in the determination of volume of the sphere will be:

(1) 2% (2) 4%
(3) 6% (4) 8%

10. A force *F* is applied on a square area of side *L*. If the percentage error in the measurement of *L* is 2% and that in *F* is 4%, what is the maximum percentage error in pressure?

(1) 2% (2) 4%
(3) 6% (4) 8%

11. A silver wire has a mass (0.6 ± 0.006) g, radius (0.5 ± 0.005) mm and length (4 ± 0.04) cm. The maximum percentage error in the measurement of its density will be: **[27 June, 2022]**

(1) 4% (2) 3%
(3) 6% (4) 7%

12. A physical '*y*' is represented by the formula $y = m^2r^{-4}g^x l^{-\frac{3}{2}}$ if the percentage errors found in *y*, *m*, *r*, *l* and *g* are 18, 1, 0.5, 4 and *p* respectively, then find the value of *x* and *p*. **[24 July 2021]**

(1) 5 and ±2
(2) $\frac{16}{3}$ and $\pm\frac{3}{2}$
(3) 8 and ±2
(4) 4 and ±3

13. The resistance $R = \frac{V}{I}$, where $V = (50 \pm 2)$ V and $I = (20 \pm 0.2)$ A. The percentage error in R is 'x' %. The value of 'x' to the nearest integer is _____. **[16 March, 2021]**

14. The radius of a sphere is measured to be (7.50 ± 0.85) cm. Suppose the percentage error in its volume is x. The value of x, to the nearest integer, is _____. **[18 March, 2021]**

15. In the experiment of Ohm's law, a potential difference of 5.0 V is applied across the end of a conductor of length 10.0 cm and diameter of 5.00 mm. The measured current in the conductor is 2.00 A. The maximum permissible percentage error in the resistivity of the conductor is: **[18 March, 2021]**

(1) 3.9 (2) 8.4

(3) 3.0 (4) 7.5

16. A wire of 1Ω has a length of 1 m. It is stretched till its length increases by 25%. The percentage change in resistance to the nearest integer is: **[26 Feb, 2021]**

(1) 56% (2) 76%

(3) 12.5% (4) 25%

17. The least count of a stop watch is 1/5 second. The time of 20 oscillations of a pendulum is measured to be 25 seconds. The maximum percentage error in the measurement of time will be

(1) 0.1% (2) 0.8%

(3) 1.8% (4) 8%

18. If the length of the pendulum in pendulum clock increases by 0.1%, then the error in time per day is **[26 Aug, 2021]**

(1) 8.64 s (2) 43.2 s

(3) 86.4 s (4) 4.32 s

19. The period of oscillation of a simple pendulum is given by $T = \pi\sqrt{\frac{l}{g}}$, where l is about 100 cm and is known to have 1 mm accuracy. The time of 100 oscillations is measured by a stop watch of least count 0.1 s. The percentage error in g is: **[BHU 2006]**

(1) 0.1% (2) 1%

(3) 0.2% (4) 0.8%

20. y = sin θ find percentage error in y if percentage error in θ is 2% at θ = π/6 rad.

21. If = $y = m$ tan θ, where m is constant then find angle at which percentage error in 'y' will be minimum.

ANSWER KEY

1.	()	**8.**	()	**15.**	()
2.	()	**9.**	()	**16.**	()
3.	()	**10.**	()	**17.**	()
4.	()	**11.**	()	**18.**	()
5.	()	**12.**	()	**19.**	()
6.	()	**13.**	()	**20.**	()
7.	()	**14.**	()	**21.**	()

PW Web/App - https://smart.link/7wwosivoicgd4

Library- https://smart.link/sdfez8ejd80if