



Video Solution on Website:- <https://physicsaholics.com/home/courseDetails/49>

Video Solution on YouTube:- <https://youtu.be/RDRvqRRE2y0>

Written Solution on Website:- <https://physicsaholics.com/note/notesDetails/69>

- Q 1. The initial and final temperatures of water as recorded by an observer are $(40.6 \pm 0.2)^\circ\text{C}$ and $(78.3 \pm 0.3)^\circ\text{C}$. Calculate the rise in temperature.
- (a) $(37.7 \pm 0.5)^\circ\text{C}$ (b) $(37.7 \pm 0.1)^\circ\text{C}$
(c) 37°C (d) $(37.7 \pm 0.6)^\circ\text{C}$
- Q 2. If the length of rod A is 3.25 ± 0.01 cm and that of B is 4.19 ± 0.01 cm then the rod B is longer than rod A by:
- (a) 0.94 ± 0.00 cm (b) 0.94 ± 0.01 cm
(c) 0.94 ± 0.02 cm (d) 0.94 ± 0.005 cm
- Q 3. Acceleration due to gravity is given by $g = \frac{GM}{R^2}$ what is the equation of the fractional error $\frac{\Delta g}{g}$ in measurement of gravity g [G & M constant]:
- (a) $-\frac{\Delta R}{R}$ (b) $2\frac{\Delta R}{R}$ (c) $\left(\frac{\Delta R}{R}\right)^2$ (d) $\frac{1}{2}\frac{\Delta R}{R}$
- Q 4. If error in measuring diameter of a circle is 4%, the error in the radius of the circle would be:
- (a) 2% (b) 8% (c) 4% (d) 1%
- Q 5. A physical quantity is given by $X = M^a L^b T^c$. The percentage error in measurement of M , L and T are α , β and γ respectively. Then maximum percentage error in the quantity X is
- (a) $a\alpha + b\beta + c\gamma$ (b) $a\alpha + b\beta - c\gamma$
(c) $\frac{a}{\alpha} + \frac{b}{\beta} + \frac{c}{\gamma}$ (d) None of these
- Q 6. The resistance $R = \frac{V}{I}$ where $V = 100 \pm 5$ volts and $I = 10 \pm 0.2$ amperes. What is the total error in R ?
- (a) 5% (b) 7% (c) 5.2% (d) $\frac{5}{2}\%$
- Q 7. According to Joule's law of heating, heat produced $H = I^2 R t$, where I is current, R is resistance and t is time. If the errors in the measurements of I , R and t are 3%, 4% and 6% respectively then error in the measurement of H is
- (a) $\pm 17\%$ (b) $\pm 16\%$
(c) $\pm 19\%$ (d) $\pm 25\%$



- Q 8. Error in the measurement of radius of a sphere is 1%. The error in the calculated value of its volume is
(a) 1% (b) 3%
(c) 5% (d) 7%
- Q 9. A body travels uniformly a distance (13.8 ± 0.2) m in a time (4.0 ± 0.3) s. Calculate its velocity with error limits. What is the percentage error in velocity?
(a) 6.6% (b) 2.6%
(c) 8.9% (d) 4.8%
- Q 10. A physical quantity A is related to a, b, c and d as follows $A = \frac{a^2 b^3}{c \sqrt{d}}$, the percentage errors of measurement in a, b, c and d are 1%, 3%, 2% and 2% respectively. What is the percentage error in the quantity A
(a) 12% (b) 7%
(c) 5% (d) 14%
- Q 11. The length, breadth and thickness of a strip are (10.0 ± 0.1) cm, (1.00 ± 0.01) cm and (0.100 ± 0.001) cm respectively. The error in its volume will be
(a) $\pm 0.03 \text{ cm}^3$ (b) $\pm 0.111 \text{ cm}^3$ (c) $\pm 0.012 \text{ cm}^3$ (d) none of these
- Q 12. The period of oscillation of a simple pendulum in the experiment is recorded as 2.63s, 2.56s, 2.42s, 2.71s and 2.80s respectively. The average absolute error is
(a) 0.1s (b) 0.11s (c) 0.01s (d) 1.0s
- Q 13. The percentage errors in the measurement of mass and speed are 2% and 3% respectively. How much will be the maximum error in the estimate of kinetic energy obtained by measuring mass and speed?
(a) 11% (b) 8% (c) 5% (d) 1%
- Q 14. A cylindrical wire has a mass 0.3 ± 0.003 g, radius 0.5 ± 0.005 mm and length 6 ± 0.06 cm. The maximum percentage error in the measurement of its density is:
(a) 1% (b) 2%
(c) 3% (d) 4%
- Q 15. For resistances R_1 and R_2 , connected in parallel, Find the relative error in their equivalent resistance, if $R_1 = (50 \pm 2) \text{ ohm}$ and $R_2 = (100 \pm 3) \text{ ohm}$?
(a) 0.0366 (b) 0.0633
(c) 0.6363 (d) 0.0363
- Q 16. Given the numbers : 161cm, 0.161cm, 0.0161 cm. The number of significant figures for the three numbers are
(a) 3, 4 and 5 respectively (b) 3, 3 and 3 respectively
(c) 3, 3 and 4 respectively (d) 3, 4 and 4 respectively
- Q 17. The number of significant figures in 0.00210 is
(a) 2 (b) 3
(c) 4 (d) 5



- Q 18. If $L=2.331\text{cm}$, $B=2.1\text{cm}$, then $L+B=$
(a) 4.431 cm (b) 4.43 cm
(c) 4.4 cm (d) 4.2 cm
- Q 19. 81.4 g sample of ethyl alcohol contains 0.002 g of water. The amount of pure ethyl alcohol to the proper number of significant figures is
(a) 81.398 g (b) 71.40 g
(c) 81.4 g (d) 81 g
- Q 20. In the final answer of the expression $\frac{(29.2-20.2)(1.79 \times 10^5)}{1.37}$. The number of significant figures is
(a) 1 (b) 2
(c) 3 (d) 4

Answer Key

Q.1 a	Q.2 c	Q.3 b	Q.4 c	Q.5 a
Q.6 b	Q.7 b	Q.8 b	Q.9 c	Q.10 d
Q.11 a	Q.12 b	Q.13 b	Q.14 d	Q.15 a
Q.16 b	Q.17 b	Q.18 c	Q.19 c	Q.20 b