

NEET UNITS AND MEASUREMENTS — COMBINATION OF ERRORS — PYQS

Max. Marks: 28
Questions: 7

Section A (MCQ) — 7 questions

- Q.1** In an electrical circuit, the voltage is measured as $V = (200 \pm 4)$ volt and the current is measured as $I = (20 \pm 0.2)$ A. The value of the resistance is:

[RE-NEET (UG) 2024]

- (1) $(10 \pm 4.2) \Omega$ (2) $(10 \pm 0.3) \Omega$
 (3) $(10 \pm 0.1) \Omega$ (4) $(10 \pm 0.8) \Omega$

Scan or tap for the full solution 

- Q.2** A metal wire has mass (0.4 ± 0.002) g, radius (0.3 ± 0.001) mm and length (5 ± 0.02) cm. The maximum possible percentage error in the measurement of density will nearly be :

[NEET (UG) 2023]

- (1) 1.3% (2) 1.6% (3) 1.4% (4) 1.2%

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- Q.3** The percentage error in the measurement of g is :

(Given that $g = \frac{4\pi^2 L}{T^2}$, $L = (10 \pm 0.1)$ cm,

$T = (100 \pm 1)$ s) [NEET (UG) 2022 (Phase 2)]

- (1) 7% (2) 2% (3) 5% (4) 3%

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- Q.4** In an experiment, the percentage of error occurred in the measurement of physical quantities A, B, C and D are 1%, 2%, 3% and 4% respectively. Then the maximum percentage of error in the measurement X, where

$X = \frac{A^2 B^{1/2}}{C^{1/3} D^3}$, will be : [NEET (UG) 2019]

- (1) 16% (2) -10% (3) 10% (4) $\left(\frac{3}{13}\right)\%$

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- Q.5** In an experiment four quantities a, b, c and d are measured with percentage error 1%, 2%, 3% and 4% respectively.

Quantity P is calculated as follows $P = \frac{a^3 b^2}{cd}$. % error in P is [NEET 2013]

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

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- Q.6** A student measures the distance traversed in free fall of a body, initially at rest, in a given time. He uses this data to estimate g , the acceleration due to gravity. If the maximum percentage errors in measurement of the distance and the time are e_1 and e_2 respectively, the percentage error in the estimation of g is [AIPMT 2010 (Mains)]

- (1) $e_2 - e_1$ (2) $e_1 + 2e_2$ (3) $e_1 + e_2$ (4) $e_1 - 2e_2$

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- Q.7** 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 [AIPMT 2008]

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

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ANSWER KEY

Ques.	1	2	3	4	5	6	7				
Ans.	2	2	4	1	3	2	4				