

[Home](#) > [Physics](#) > [Units, Dimensions and Measurements](#) > [Dimensional formulae and dimensional equations](#)**Question**[Download Solution PDF](#)

If L and R denote inductance and resistance, respectively, then the dimension of L / R is given by:

1. $M^0 L^0 T^0$
2. $M^0 L^0 T$
3. $M L T^0$
4. $M L^0 T$

Answer (Detailed Solution Below)

Option 2 : $M^0 L^0 T$

Crack CTET + State TET + PRT +
TGT + PGT with
India's Super Teachers

FREE Demo Classes Available*

[Explore Supercoaching For FREE](#)

**Free Tests**[View all Free tests >](#)

40 Questions 40 Marks 15 Mins

Detailed Solution

[Download Solution PDF](#)

Concept:

- **Measurement of any physical quantity** involves comparison with a certain basic, arbitrarily chosen, internationally accepted reference standard called unit, and a Dimension is a mathematical tool used for studying the nature of physical quantities.
- The basic concept of dimensions is that we can **add or subtract** only those quantities which have the same dimensions.
- And the dimensional formula is defined as the expression of the physical quantity in terms of **mass, length, and time**.

Inductance:

- The **tendency of any conductor** which **opposes** the **change in the electric current flowing through it** is called as **inductance** of that conductor.
- The SI unit **of inductance is Henry**.
- The Dimension of Inductance is $[M^1 L^2 T^{-2} A^{-2}]$

The inductance of a coil of wire is given by,

$$L = \frac{\mu_0 N^2 A}{L}$$

Where N is the number of turns

A is the cross-sectional area

L is the length of the solenoid.

μ_0 is the permeability of the free space

Resistance:

- The property by which an electric conductor opposes the flow of current through it is called as **resistance** of the conductor.
- It is denoted by R.
- The **SI unit of resistance is Ohm (Ω)**.

$$Resistance (R) = \rho \frac{l}{A}$$

Where ρ is the resistivity of a conductor, l is the length of conductor and A is the cross-sectional area.

Dimension for resistance (R) = $[M^1 L^2 T^{-3} A^{-2}]$

Calculation:

Dimension of R = $[M^1 L^2 T^{-3} A^{-2}]$

Then the Ratio of both –

$$\frac{L}{R} = \frac{[M^1 L^2 T^{-2} A^{-2}]}{[M^1 L^2 T^{-3} A^{-2}]} = [M^0 L^0 T^1 A^0]$$

Hence the **correct option in terms of M, L & T is $[M^0 L^0 T]$**

[Download Solution PDF](#)
[Share on Whatsapp](#)

Latest DSSSB PRT Updates

🕒 Last updated on Mar 31, 2023

The Delhi Subordinate Services Selection Board (DSSSB) had released the final result and cut-off marks for the [DSSSB PRT](#). The result and marks has been released for the post code - 42/21. A total of 434 candidates have been selected for the post of Assistant Teacher (Primary) in the Directorate of Education. Check out the [DSSSB PRT Result](#) here. Candidates who will be finally

Sign Up Now & **Get Free Access to All**

- Daily Live Classes
- 250+ Test series
- Study Material & PDF
- Quizzes With Detailed Analytics
- + More Benefits

[Get Free Access Now](#)

Ace your [Units, Dimensions and Measurements](#) preparations for Dimensional formulae and dimensional equations with us and master [Physics](#) for your exams. Learn today!

FREE

India's #1 Learning Platform

🛡️ Trusted by 3.9 Crore+ Students

Start Complete Exam Preparation



Daily Live
MasterClasses



Practice Question
Bank



Mock Tests &
Quizzes

[Get Started for Free](#)
 [Download App](#)
[« Previous Ques](#)
[Next Ques »](#)

More Dimensional formulae and dimensional equations Questions

Q1. LT⁻² is the dimension of which of the following quantities?



Q3. An expression for a dimensionless quantity x is given by $x = \frac{\alpha}{\beta} \log_e \left(\frac{k}{\beta x} \right)$, where α and β are constants, x is distance; k is the Boltzmann constant and t is the temperature. Then the dimensions of α will be :

Q4. What are the dimensions of gravitational potential? >

Q5. Match List - I with List - II: List - I List - II (a) Gravitational constant (G) (i) [L²T⁻²] (b) Gravitational potential energy (ii) [M⁻¹L³T⁻²] (c) Gravitational potential (iii) [LT⁻²] (d) Gravitational intensity (iv) [ML²T⁻²] Choose the correct answer from the options given below: >

Q6. The dimensions [ML⁻² A⁻²] belong to the: >

Q7. Match List - I with List - II : List - I List - II (a) h (Planck's constant) (i) [ML²T⁻¹] (b) E (kinetic energy) (ii) [ML²T⁻¹] (c) V (electric potential) (iii) [ML²T⁻²] (d) P (linear momentum) (iv) [ML²I⁻¹T⁻³] Choose the correct answer from the options given below : >

Q8. If e is the electronic charge, c is the speed of light in free space and h is Planck's constant, the quantity $\frac{1}{4\pi\epsilon_0} \frac{|e|^2}{\hbar c}$ has dimensions of: >

Q9. The work done by a gas molecule in an isolated system is given by, $W = \alpha\beta^2 e^{-\frac{x^2}{\alpha kT}}$, where x is the displacement, k is the Boltzmann constant and T is the temperature. α and β are constants. Then the dimensions of β will be: >

Q10. If force [F], acceleration [A] and time [T] are chosen as the fundamental physical quantities. Find the dimensions of energy. >

More Units, Dimensions and Measurements Questions

Q1. The Unit of noise pollution (level) is - >

Q2. The dimension of Plank's constant is _____. >

Q3. A cube has a side of length 1.1×10^{-2} m. Its volume is: >

Q4. The density of a cube is found out by measuring its mass and length of its sides. If the maximum errors in the measurement of mass and length are 3% and 2% respectively, the maximum error in the measurement of density will be : >

Q5. Length cannot be measured in: >

Q6. The respective number of significant figures for the numbers 28.028, 0.0004 and 1.2×10^{-3} are: >

Q7. Consider the following units : A. kilowatt hour B. joule C. newton metre D. pascal metre² The units of energy are >



English ▼

[Get Started](#)

Q10. What is the SI unit of force?





English

Get Started

Crack CTET + State TET + PRT + TGT + PGT with
India's Super Teachers

Ajay Singh Kharb
Testbook

Prateek Shivalik
Prateek Shivalik

Explore Supercoaching For FREE

Suggested Test Series View All

All TGT Previous Year Paper Test Series (220+)

232 Total Tests with 4 Free Tests

Start Free Test

CTET & State TET - Previous Year Papers (180+)

211 Total Tests with 1 Free Tests

Start Free Test

Suggested Exams

DSSSB PRT

DSSSB PRT Important Links

- Admit Card
- Answer Key
- Result
- Syllabus and Exam Pattern
- Eligibility Criteria
- Cut off
- Books
- Salary and Job Profile
- Previous Year Paper
- Exam Analysis

Important Exams

More Physics Questions

SSC JE	IBPS SO	UPSC CAPF AC	LIC AAO
SSC CHSL	SBI PO	UPSC CDS	LIC Assistant
SSC JE	SBI Clerk	UPSC IES	NABARD Development Assistant
SSC CPO	CUET	UPSC NDA	Assistant
IBPS PO	UGC NET	RRB NTPC	SEBI Grade A
IBPS Clerk	RRB Group D	RRB Group D	
IBPS RRB Clerk	UPSC IAS	RRB SSE	

Q3. Geo-stationary satellite revolves at

Super Coaching

Q4. Which colour of light deviates maximum in the dispersion of white light by prism?

UPSC CSE Coaching	GATE mechanical Coaching	Bank Exams Coaching	UPTET Coaching
BPSC Coaching	GATE mechanical Coaching	CDS CAPF AFCAT Coaching	REET Coaching
AE JE electrical Coaching	SSC Coaching	Coaching	MPTET Coaching
AE JE mechanical Coaching	CUET Coaching	GATE cse Coaching	JTET Coaching
Coaching	GATE electrical Coaching	GATE ece Coaching	
AE JE Civil Coaching	Railways Coaching	CTET State TET Coaching	
bihar govt job Coaching	GATE civil Coaching	CTET Coaching	

Q8. The best conductor of heat among the following is _____

Exams

Q9. For total internal reflection, ray of light has to pass through-

REET	TN TRB	UP PGT	HKRN TGT
NCTE	SLEP	UPPSC	KVS Non Teaching Recruitment
OAVS	Rajasthan PTET	SSA Chandigarh TGT	

Test Series

REET Level 1 & 2 (Hindi-Sanskrit-English) Mock Test	RSMSSB Lab Assistant (Science) Mock Test	Rajasthan Basic Computer Instructor Mock Test	AEES PRT (Atomic Energy Education Society) Mock Test
Rajasthan PTET Mock Test	DSSSB TGT Natural Science Mock Test	CBSE Junior Assistant Mock Test	NVS TGT Mock Test
UP TGT Commerce Mock Test	DSSSB PRT Assistant Teacher Mock Test	NVS Junior Secretariat Assistant (LDC) Mock Test	

Previous Year Papers

REET Previous Year Papers	Rajasthan PTET Previous Year Papers	KEA Assistant Professor Previous Year Papers	SSA Chandigarh TGT Previous Year Papers
OAVS Previous Year Papers	UP PGT Previous Year Papers	RSMSSB Lab Assistant Previous Year Papers	HSSC PGT Previous Year Paper
TN TRB Previous Year Papers	UP TGT Previous Year Papers	UPPSC Lecturer Previous Year Papers	HSSC TGT Previous Year Papers



English ▾

[Get Started](#)

Objective Questions

Excretory System MCQ
Artificial Neural Network
MCQ
Hashing MCQ

HTTP MCQ
Human Resource Planning
MCQ
Hydrocarbons MCQ

Hypothesis MCQ
Local Government MCQ
Logistics Management
MCQ

Memory Management
MCQ



Testbook Edu Solutions Pvt.
Ltd.

1st & 2nd Floor, Zion
Building,
Plot No. 273, Sector 10,
Kharghar,
Navi Mumbai - 410210

support@testbook.com

Toll Free:

1800 833 0800

Office Hours: 10 AM to 7 PM
(all 7 days)

Company

About us
Careers We are hiring
Teach Online on
Testbook
Partners
Media
Sitemap

Products

Test Series
Testbook Pass
Online Courses
Online Videos
Practice
Blog
Refer & Earn
Books

Our Apps



Testbook App
[Download now](#)



Current Affairs
[Download now](#)

Follow us on

