



PHYSICS

BOOKS - JEEVITH PUBLICATIONS PHYSICS (KANNADA ENGLISH)

SUPER MODEL QUESTION PAPER 1

Question Paper 1 For Practice Part A

1. Give any two examples for a dimensional constant.

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2. State lami's theorem.

3. What is meant by a conservative force?

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4. What is meant by axis of rotation ?
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5. What is elastic limit?
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6. How does liquid pressure depend on the depth of a point below

the surface of a liquid

7. How does surface tension of liquid vary with temperature?

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8. What is meant by regelation?
9. Represent an isobaric process graphically. • •
10. How many degrees of freedom are there in there in the

translatory motion of atoms?





Question Paper 1 For Practice Part B

1. Name any two symmetries which help in unifying the forces of

nature.

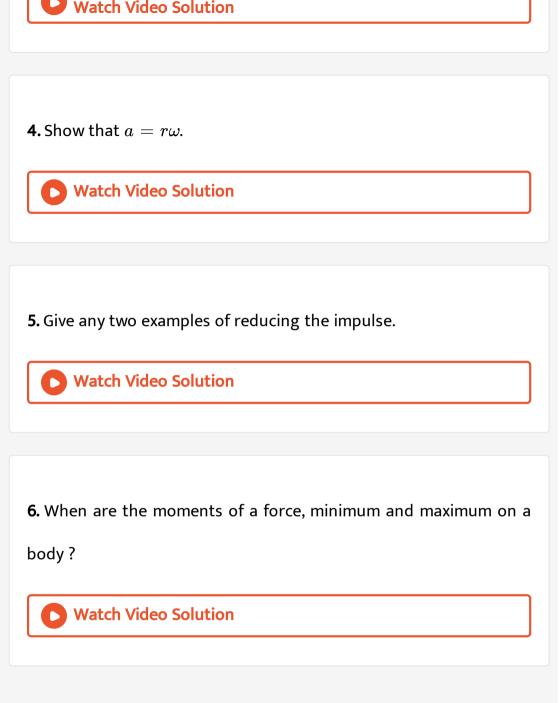
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2. A physical quantity 'Q' is given by $Q = \frac{A^2 B^{3/2}}{C^4 D^{1/2}}$. The percentage error in A, B, C, D, E are 1 %, 2 %, 4% , 2 % respectively . Calculate the minimum and maximum percentage errors in 'Q'

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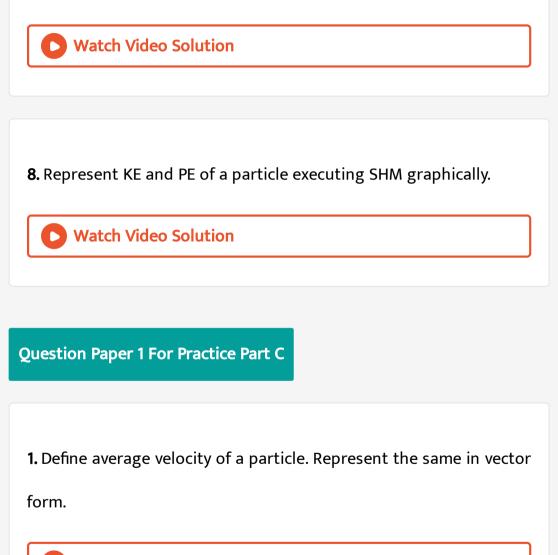
3. Define relative velocity of one body with respect to another.





7. Give an expression for the terminal speed of a small spherical

object in a homogenous surrounding fluid.



2. State and explain Newton's first law of motion.

3. Obtain an expression for common velocity and loss in the kinetic energy for a moving body m_1 colliding against another at rest.

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4. State the conditions of equilibrium of a system of coplanar

forces.



5. State and explain Newton's law of gravitation.



6. A wire 4 m long and 0.3 mm in diameter is stretched by a force of 100 N. If extension in the wire is 0.3 mm, then calculate the potential energy stored in the wire.

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7. Show that $lpha=rac{eta}{2}$ where symbols have their usual meaning.

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8. Estimate the size of diamond molecule given its atomic mass

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12.01u and density 2.22	imes10^3 {
m kgm^{-3}}.
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1. Show that $x=ut+rac{1}{2}at^2$ graphically, where symbols have their

usual meaning

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2. Obtain an expression for common velocity and loss in the kinetic

energy for a moving body m_1 colliding against another at rest.



3. State and explain the theorem of parallel axis with an example

4. Derive Mayer's equation from the I law of thermodynamics.

5. Show that only odd harmonics are present in the closed pipe system.

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6. A cyclist is riding with a speed of 27 km /h . As he approaches a circular turn on the road of radius 80 m , he applies brakes and reduces his speed at the constant rate of $0.50m/s^{-2}$ every second . What is the magnitude and direction of the net acceleration of the cyclist on the circular turn ?

7. A 10 kg block (M_1) is on a smooth horizontal table. The block is connected to a second block of mass 4 kg (M_2) by a massless flexible taut chord that passes over a frictionless pulley. The 4 kg block is 0.5 m above the floor. The two blocks are released from rest. With what speed does the 4 kg block hit the ground?



8. In a sub - stage lunch of a satellite, the first stage brings the satellite to a height of 150 km and the second stage gives it the necessary critical speed to put . It in a circular orbit around the Earth , which stage requires more expenditure of fuel ?

(Given

$$M_E = 6.0 imes 10^{24} kg, R = 6.4 imes 10^6 m, G - 6.67 imes 10^{-11} Nm^2 kg^{-2})$$



9. Initial ice layer on a pond is 10 mm. What time will it take to form an addition of 5 mm on it? Given K of ice $= 1.6Wm^{-1}K^{-1}$, temperature= $-10^{\circ}C$ and density of water $= 10^3kgm^{-3}$



10. A train standing a the outer signal of a railway station blows a whistle of frequency 400Hz in still air .

What is the frequency of the whistle for a platform observer when

the train

(i) approaches the platform with a speed of $10ms^{-1}$?

(ii) recedes from the platform with a speed of $10ms^{-1}$?



Question Paper 2 For Practice Part A

1. What is a dimensional formula ? Give an example for a physical

quantity.

