

# Sahaj Adhyayan (सहज अध्ययन)

जर हे **Practice Question Papers** तुम्हाला खरंच फायदेशीर वाटत असतील तर तुमच्या सर्व मित्र मैत्रिणींना पाठवा.

त्यांना देखील ह्या सर्वांचा अभ्यासासाठी फायदा होऊ द्या.

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तर ते आम्हाला WhatsApp वर पाठवा,

इतर विद्यार्थी मित्रांना त्या सर्वांचा उपयोग होईल.

## First Semester Exam

Class-11Sci

Subject- Physics

Marks -50

Time-2.00h

### Section A

**Q.1) Select correct objective.**

**7M**

**1) Dimensions of kinetic energy are the same as that ....**

- a) Acceleration    b) work    c) pressure    d) force

**2) Zero error of an instrument introduces-----**

- a) systematic error    b) random error  
c) personal error    d) decimal error

**3) Which of the following is a vector ?**

- a) speed    b) displacement    c) mass    d) time

**4) A force of 60 N acting perpendicular to a force of 80N , magnitude of resultant force is....**

- a) 20N    b) 70N    c) 100N    d) 140N

**5) for two equal vectors-----**

- a) magnitude is same    b) direction is same  
c) magnitude and directions are same  
d) magnitude is same and direction is opposite

**6) Change in dimensions is known as-----**

- a) deformation    b) formation    c) contraction    d) strain

**7) Which substance have highest elasticity?**

- a) rubber    b) glass    c) steel    d) copper

**Q.2 Answer the following questions.**

**7M**

1. State SI unit and dimensions of strain.
2. Define elastic limit.
3. Define scalar product of two vectors.

4. Explain unit vector.

5. It is possible to add two velocities using triangle law of vector addition ?

6. Explain order of magnitude with examples.

7. Find number of significant figures for 91.000 91.000

### Section -B

Attempt any Eight.

16M

Q.3 List the conventions followed while using SI unit.

Q.4 Find dimensions of quantity work.

Q.5 If  $\mathbf{v}_1 = 3\mathbf{i} + 4\mathbf{j} + \mathbf{k}$  and  $\mathbf{v}_2 = \mathbf{i} - \mathbf{j} - \mathbf{k}$  determine the magnitude of  $\mathbf{v}_1 + \mathbf{v}_2$

Q.6. Determine the vector product of  $\mathbf{v}_1 = 2\mathbf{i} + 3\mathbf{j} - \mathbf{k}$  and

$$\mathbf{v}_2 = \mathbf{i} + 2\mathbf{j} - 3\mathbf{k}$$

Q.7. What is triangle Law of vector addition.

Q.8. A telephone wire 125 m long and 1mm in radius is stretched to a length 125.2 m when a force of 800 N is applied. What is the value of young's modulus for material of wire.

Q.9. Define compressibility. State its unit and dimensions.

Q.10. define and explain shearing stress.

Q.11 What is the stress in a wire which is 50 m long and  $0.01\text{cm}^2$  cross section. If the wire bears a load of 100kg?

Q.12. Explain Hook's law



Q.13. Define commutative law for vector multiplication.

### Section C

12M

Attempt any four.

Q.14. What is modulus of rigidity? Derive an expression for it

Q.15. Determine the volume contraction of solid copper cube, 10 cm on an edge, when subjected to a hydraulic pressure of  $7.0 \times 10^6 \text{ pa}$ .

(Bulk modulus of copper =  $140 \times 10^9 \text{ pa}$ )

Q.16. For  $\mathbf{v}_1 = 2\mathbf{i} - 3\mathbf{j}$  and  $\mathbf{v}_2 = 6\mathbf{i} + 5\mathbf{j}$ , determine the magnitude and direction of  $\mathbf{v}_1 + \mathbf{v}_2$ .

Q.17. What is meant by resolution of vector? Find its rectangular components.

Q.18. Describe briefly different types of system of units.

Q.19. Find conversion factor  $1\text{J} = \text{-----erg}$ .

#### Section-D

Attempt any two.

8M

Q.20. In ohm's experiment the values of unknown resistance were found to be 6.12 ohm, 6.09 ohm, 6.22 ohm, 6.15 ohm calculate percentage error.

Q.21. State and prove law of parallelogram of vector addition. Determine magnitude of resultant vector.

Q.22. State different types of modulus of elasticity.

Q.23. Explain If  $P = P_x i + P_y j + P_z k$  and  $Q = Q_x i + Q_y j + Q_z k$  then

Prove  $P \cdot Q = P_x Q_x + P_y Q_y + P_z Q_z$