Sahiwal Board 2021

Class 9th

Physics

Group – I

1. In SI, the unit of thermal conductivity is:

A. $Wm^{-2}K$

B. $Wm^{-1}K^{-1}$

C. $Wm^{-1}K^{-2}$

D. $Wm^{-2}K^{-1}$

2. The mass of earth is:

A. 6×10^{4} kg

B. 6×10^{14} kg

C. 6×10^{24} kg

D. 6×10^{34} kg

3. One horse power is equal to:

A. 764 W

B. 746 W

C. 674 W

D. 647 W

4. In SI, the unit of density is:

A. kgm^{-1}

B. kgm^{-2}

C. kgm^{-3}

D. kgm

5. Equation of momentum is:

A. $p = \frac{v}{m}$

B. $p = mv^2$

C. $p = (mv)^2$

D. p = mv

6. A force "F" acting along x – axis, its y – component is:

A. zero

B. F

C. 1

D. 2F

7. By dividing displacement of a moving body with time, we obtain:

A. watt

B. Newton

C. Pascal

D. Kilogram

8. Which one of the given units is not a derived unit?

A. Watt

B. Newton

C. Pascal

D. Kilogram

9. In SI, unit of specific heat is:

A. $Jkg^{-1}K^{-1}$

B. $J^{-1}kgK^{-1}$

C. $Jkg^{-3}K^{-1}$

D. $Jkg\ K^{-2}$

10. The ability of a body to do work is called:

A. Power

B. Energy

C. Force

D. Pressure

11. The force exerted perpendicular on unit area of an object is called:

A. Strain

B. Young's modulus

C. Pressure

D. Buoyant force

12. The ways by which transfer of heat takes place are:

A. 5

B. 2

C. 3

D. 4

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Group – I

Q2. Write short answers to any FIVE (5) questions: 10

i. What do you understand by the zero error of a measuring instrument?

ii. What is Vernier Callipers? Write its least count.

iii. Find the number of significant figures in 210.0g and also express it in scientific notation.

iv. Define Scalar and give any two examples.

v. Differentiate between distance and displacement.

vi. Define Velocity and write its mathematical formula.

vii. Write two ways to reduce friction.

viii. Why rolling friction is less than sliding friction.

Q3. Write short answers to any FIVE (5) questions.: 10

i. Define Head to Tail rule.

ii. What is difference between like and unlike forces?

iii. Define Rigid Body and Axis of Rotation.

iv. What are artificial satellites? Give an example.

v. What is field forces?

vi. Write the value of "G" and its unit in SI.

vii. What is meant by efficiency of a system?

viii. Define Power and write its SI unit.

Q4. Write short answers to any FIVE (5) questions.: 10

i. Define Density and write its formula.

ii. What is meant by elasticity?

iii. Define Stress and write its SI unit.

iv. What is meant by melting point and freezing point?

v. Evaporation causes cooling. Why?

vi. Define Transfer of Heat and write its two ways.

vii. Write two uses of convection currents.

viii. Define Conduction also describe conduction in solid, briefly.

Section – II

Each Question carries Nine marks. (5+4=9)

Q5. (a) Derive the third equation of motion with the help of speed-time graph.

(b) How much centripetal force is needed to make a body of mass 0.5 kg to move in a circle of a radius 50 cm with a speed 3 ms^{-1}?

Q6. (a) State and explain Law of Gravitation.

(b) A mechanic tightens the nut of a bicycle using a 15 cm long spanner by exerting a force of 200 N. Find the torque that has tightened it.

Q7. (a) Explain the working of hydraulic press.

(b) A balloon contains 1.2m^3 air at 15^o C. Find its volume at 40^{o}C. Thermal coefficient of volume expression of air is $3.67 \times 10^{-3}\ k^{-1}$.

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Physics

Group – II

1. Volume of thermal expansion (V)=

A. $V_o(1 + \Delta T)$

B. $V_o(1 + \beta\Delta T)$

C. $V_o(\beta\Delta T)$

D. $V_o(1 - \beta\Delta T)$

2. Formula to find mass of Earth is:

A. $M_e = \frac{g^2R}{G}$

B. $M_e = \frac{R^2g}{G}$

C. $M_e = \frac{Rg}{G}$

D. $M_e = \frac{R^2g^2}{G}$

3. SI unit of power is:

A. ms^{-1}

B. second

C. ms^{-2}

D. watt

4. The SI unit of pressure is Pascal, which is equal to:

A. 1 Nm^{-2}

B. 10 Nm^{-2}

C. 10^2 Nm^{-2}

D. 10^3 Nm^{-2}

5. Coefficient of friction between tyre and dry rod is:

A. 1

B. 0.1

C. 2

D. 0.2

6. Third equation of motion is:

A. S = vt

B. 2aS = $Vf^2 - Vi^2$

C. $v_f = v_i + at$

D. F = ma

7. Centripetal force (F_e) is equal to:

A. $\frac{mv^2}{r^2}$

B. $\frac{mv}{r^2}$

C. $\frac{mv}{r}$

D. $\frac{mv^2}{r}$

8. The way by which transfer of Heat take place was:

A. 2

B. 4

C. 3

D. 5

9. AN interval of 200 μs is equal to:

A. 0.2 s

B. 0.02 s

C. 2×10^{-4} s

D. 2×10^{-6} s

10. The unit of thermal conductivity is:

A. $Wm^{-1}K$

B. WmK

C. WmK^{-1}

D. $Wm^{-1}K^{-1}$

11. A force acting along x – axis, its y – component is:

A. 0

B. 1

C. F

D. 2F

12. A car having mass 400kg, moving with velocity $2ms^{-1}$ its kinetic energy will be:

A. 100 J

B. 200 J

C. 800 J

D. 1600 J

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Physics

Group – II

Q2. Write short answers to any FIVE (5) questions: 10

i. What is meant by prefixes? Give an example.

ii. Estimate 16 years age in seconds.

iii. Differentiate between distance and displacement.

iv. Define Speed and Velocity.

v. Convert 36 kmh^{-1} into ms^{-1}.

vi. Define Momentum. Write its equation.

vii. When a gun s fired, it recoils. Why?

viii. How many seconds in a day? Calculate it.

Q3. Write short answers to any FIVE (5) questions.: 10

i. Define Head to Tail rule.

ii. Define Torque and write its mathematical equation.

iii. Describe Principle of Moments.

iv. What is meant by gravitational force?

v. Define Orbital Velocity and write its formula.

vi. Describe global positioning system.

vii. Define Power and writs its SI unit.

viii. Define Efficiency and write its equation.

Q4. Write short answers to any FIVE (5) questions.: 10

i. A stone having volume 200 cm^3 and 500 g mass. Find tits density.

ii. What is pressure? Write its mathematical formula.

iii. Is pressure scalar or vector? Write its SI unit.

iv. Write down the names of two factors affecting evaporation.

v. Define Specific heat capacity.

vi. Write the name of two ways by which transfer of heat takes place?

vii. Why does transfer of heat in fluids take place by convection?

viii. What is meant by convention currents?

Section – II

Each Question carries Nine marks. (5+4=9)

Q5. (a) State Newton's third law of motion and give three examples from daily life.

(b) Find the retardation produced when a car moving at a velocity of $30ms^{-1}$ slows down in 5 seconds.

Q6. (a) Define Equilibrium also explain first condition for equilibrium.

(b) Calculate the power of a pump which can lift 200kg of water through a height of 6m in 10 seconds.

Q7. (a) What is meant by thermal expression? Derive the equation of linear thermal expansion in solids.

(b) A wooden block measuring 40cm×10cm×5cm has a mass 850 g. Find the density of wood.