

GREENLAWN'S SCHOOL, WORLI
Final Examination 2023-24
PHYSICS

STD: VIII
Date: 07/01/2024

Marks: 80
Time: 2 hrs

Question 1 Choose the correct answers to the questions from the given options.

(Do not copy the question, write the correct answers only.)

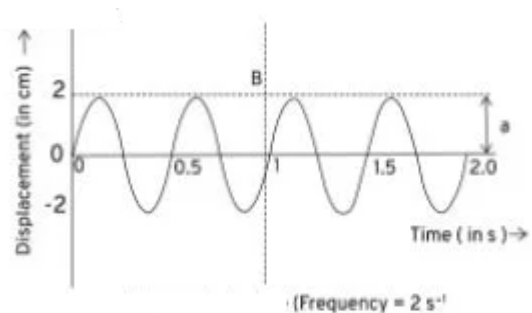
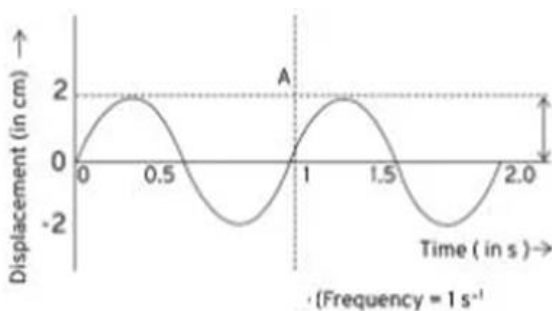
[15]

- I.** Loudness of a sound depends on the
a. the wavelength of sound. b. volume of air around the vibrating body.
c. time. d. none of these
- II.** The pitch of a flute can be increased by
a. increasing the length of its vibrating air column.
b. decreasing the length of its vibrating air column.
c. increasing the length of its vibrating string.
d. decreasing the length of its vibrating string.
- III.** Musical sounds are caused due to –
a. regular vibrations. b. irregular vibrations.
c. damped vibrations. d. none of these.
- IV.** What is the value of one pascal?
a. $1 \text{ N}^2/\text{m}^2$ b. $1 \text{ N}/\text{m}^2$
c. $1 \text{ N}^2/\text{m}$ d. $1 \text{ N}/\text{rn}$
- V.** Army tanks are provided with caterpillar tracks under their wheels in order to
a. decrease pressure on the ground b. increase pressure on the ground
c. make them look different d. prevent them from damage.
- VI.** The factors on which linear expansion depend on are.
a. original length of the solid. b. increase in the temperature of the solid.
c. nature of the solid. d. all of these
- VII.** When an object is placed at the principal focus of a concave mirror, the image will be formed at the
a. focus. b. centre of curvature,
c. pole. d. infinity.
- VIII.** The number of constituent colours of white light is
a. 5. b. 3.
c. 7. d. 9.
- IX.** The phenomenon of light responsible for the formation of rainbow is –
a. reflection. b. refraction,
c. dispersion. d. lateral inversion.

- X.** If an electroscope is charged by induction, it acquires –
 a. the same charge. **b.** an opposite charge.
 c. no charge at all. **d.** none of these.
- XI.** The colour code for a live wire is –
 a. black or blue. **b.** green or yellow.
 c. red or brown. **d.** white and black.
- XII.** An electroscope is an instrument used to –
 a. detects the presence of charge on a body. **b.** view electrons.
 c. produce an electrostatic charge. **d.** view atoms.
- XIII.** Pressure inside a liquid increase with:
 a. increase in depth **b.** decrease in depth
 c. decrease in density **d.** none of the above
- XIV** The constant temperature at which liquid gets converted into its vapour state is called as
 a. Melting point **b.** Boiling point
 c. Dew point **d.** Freezing point
- XV.** Charging a conductor by bringing another charged conductor close to it is called
 a. induction **b.** conduction
 c. convection **d.** radiation

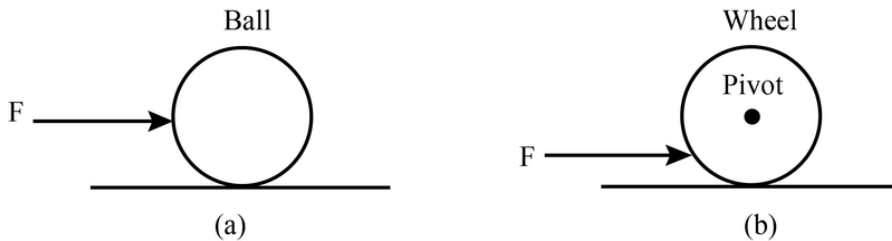
Question 2

- a. i. Which of the two will have a higher pitch – the sound of a whistle or that of a drum?
 ii. State the unit of loudness. **[2]**
- b. What do you understand by atmospheric pressure? How does it change with altitude? **[2]**
- c. A ray of light travelling in medium A ($\mu = 1$) enters medium B ($\mu = 1.4$).
 1. Will the ray of light bend towards or away from the normal?
 2. In which medium will the speed of light be more? **[2]**
- d. Why does a fuse wire have lower melting point than that of connecting wires? **[2]**
- e. Why do the tyres of a car filled with air become slightly fiat in winter? **[2]**
- f. From the given adjoining displacement time graph, find the ratio of pitch and loudness. **[2]**

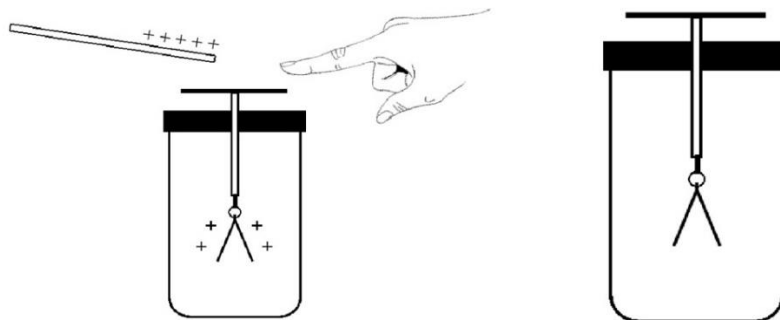


Question 3

- a. How is evaporation different from boiling based on parameters like process and Occurrence? [2]
- b. How is a body charged by friction? [2]
- c. What is a conductor? Explain why a conductor does not produce static electricity. [2]
- d. State the effect of force F in each of the following diagrams (a) and (b). [2]



- e. The picture on the left below illustrates a positive charge near an electroscope. The terminal is then touched by the finger. The picture on the right illustrates the result after the finger and rod are removed. Label the charges inside the terminal and on the leaves appropriately. [2]



- f. List any 3 precautions while handling electricity. [3]

Question 4

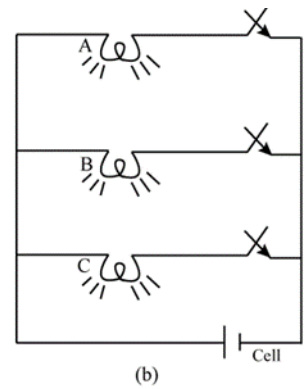
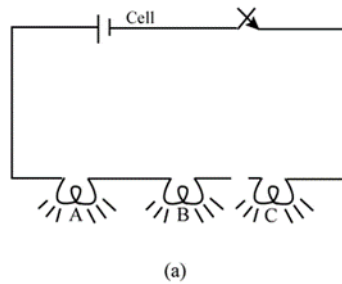
- a. A force of 250 N produces a moment of force of 500 N m. Calculate the moment arm. [2]
- b. Why can concave mirrors not be used as rear-view mirrors in vehicles? [2]
- c. A heater is rated at 5 kW. Calculate the cost of energy consumed by it in 30 days if it is run for 2 hours daily. The cost of 1 kWh is priced at ₹ 4.20. [3]
- d. How and in which wire is a fuse connected in an electric circuit? What is its role? [3]

Question 5

- a. If the magnitude of force acting on a surface is doubled and area over which it acts is halved, then what will be the effect on pressure? [2]
- b. There is a coloured stone at the bottom of a swimming pool. Jasvinder is trying to hit it with an arrow. However, each time he misses the target by a narrow margin. Can you explain to Jasvinder why he misses the target and how can he hit it with more accuracy? [2]

c. State and explain the characteristics of sound. [3]

d. Given figure shows two ways of connecting the three bulbs A, B and C to a battery. Name the two arrangements. Which of them do you prefer to use in a household circuit? Give a reason to support your answer. [3]

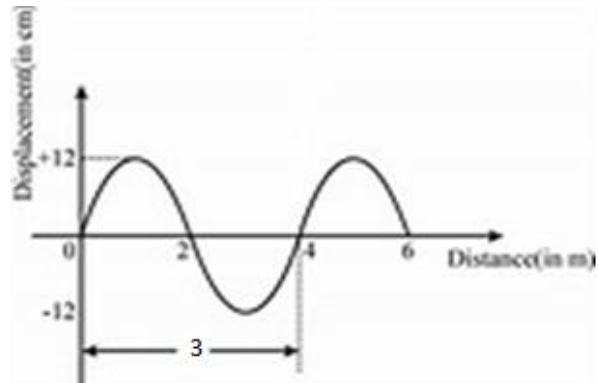
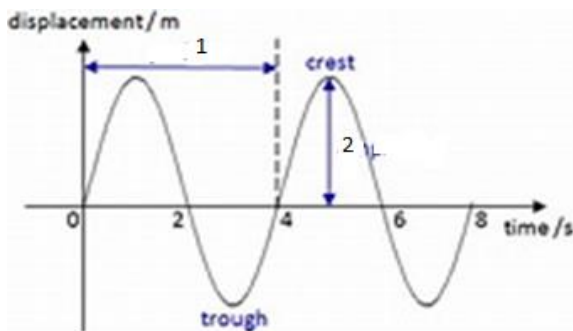


Question 6

a. A motorcycle weighs 1200 N. If the pressure exerted by one of its tyres is 120 Pa, then find the area of the tyre in contact with the road. [2]

b. Swasti was given an electroscope with its gold leaves diverged. What do the diverged leaves indicate? She was also given a rod which she did not know was charged or not. Swasti touched the rod to the cap of the electroscope to find that the divergence of the gold leaves decreased. What should she infer about the charge status of the rod? [2]

c. In given displacement - time graph and displacement - distance graph label the parts 1,2 and 3 [3]



d. What is lightning? How is it caused? [3]

Question 7

a. Differentiate between the clockwise and anticlockwise moments. [2]

b. Bimetallic strip consists of two strips of different metals: iron (on top) and brass (on the bottom) welded together. In which direction the strip will bend if you put it over a flame if $\alpha = 11 \times 10^{-6}/C$ for iron, and $\alpha = 19 \times 10^{-6}/C$ for brass. And give reason for your answer. [2]



- c.** Define amplitude, time period and frequency with respect to a sound wave. State the relationship between time period and frequency of a wave. **[3]**
- d.** Name the type of a spherical mirror which always forms a virtual, erect, and diminished image. What is the position of such type of images with respect to the mirror? Draw a ray diagram for the same. **[3]**
