

**SAMAGRA SHIKSHA KERALA
SUMMATIVE ASSESSMENT - 1 2026-27**

PHYSICS

Standard: X

Time : 1½ hour

Total Score : 40

Instructions

- The first 15 minutes is the cool-off time.
Use this time to read and understand the questions and plan your answers.
 - This question paper consists of 18 questions divided into Sections A, B, C, and D.
 - There is a choice for questions 10, 11, 12, 15, and 18.
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Section - A

Choose the correct answer for questions 1 to 4. Each question carries 1 score. (4 x 1 = 4)

1. Which of the following is a longitudinal wave? (1)
 - a) Radio wave
 - b) Sound wave
 - c) Wave on the surface of water
 - d) Light wave
2. Assertion (A): The walls of large halls like cinema theatre are made rough. (1)
Reason (R): Rough surfaces reflect sound more effectively than smooth surfaces.
 - a) A is correct, R is incorrect
 - b) Both A and R are incorrect
 - c) A is incorrect, R is correct
 - d) Both A and R are correct
3. Statements regarding image formation by a telescope are given below. (1)
 - i) The image formed by the objective is always erect.
 - ii) The image formed by the objective is small and real.
 - iii) The position of the image formed by the objective is in between F and 2F of the eyepiece.
 - iv) The image formed by the eyepiece is virtual.

Which of the following is correct?

 - a) i & iii
 - b) ii & iv
 - c) i & iv
 - d) iii & iv

4. Some statements related to lenses are given.
Match the items suitably in column 1 with column 2.

(1)

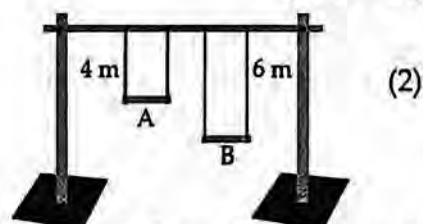
Column 1	Column 2
A. Light ray parallel to the optic axis falling on a concave lens	I. Passes parallel to the optic axis
B. Light ray passing through optic centre	II. Passes through the principal focus
C. Light ray parallel to the optic axis falling on a convex lens	III. Appears to come from the principal focus and moves away from the optic axis
D. Light ray passing through a concave lens directed towards the principal focus on the other side	IV. Passes along a straight line without undergoing refraction

- a) A - IV, B - III, C - I, D - II b) A - III, B - IV, C - II, D - I
c) A - II, B - III, C - IV, D - I d) A - IV, B - III, C - II, D - I

Section - B

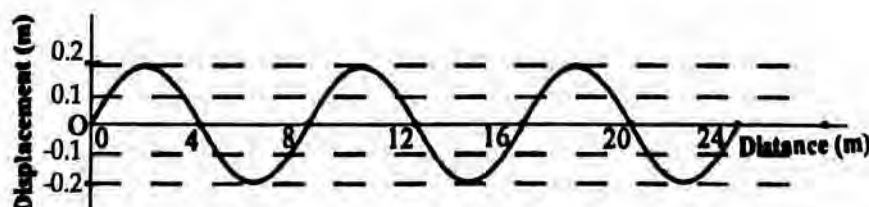
Answer questions 5 to 11. There is a choice for questions 10 and 11. Each question carries 2 scores. (7 × 2 = 14)

5. A, B are two swings hung from an iron rod fixed as shown in the figure.



Which swing will complete 10 oscillations faster, if they are allowed to oscillate. Justify your answer.

6. If you are clapping in front of a hill, standing away from it, you can hear the sound again after a short time.
a) Name this phenomenon. (1)
b) Can you hear the sound distinctly again if you clap standing close to the hill? Explain why? (1)
7. Low magnification of the image formed by the objective of a compound microscope is not beneficial.
a) Why? (1)
b) Suggest a solution for this. (1)
8. An object on the principal axis of a convex lens is 10 cm away from optic centre. The height of the object is 3 cm. The focal length of the lens is 4 cm. Draw a ray diagram of image formation, based on the given measurements. (2)
9. Observe the figure of a wave motion.



- a) What is the amplitude of this wave? (1)
b) Find the time required for the wave to travel 24 m if the speed of wave is 8 m/s. (1)

10. A. An object of height 1 cm is placed 25 cm away from a convex lens with a focal length of 20 cm.
- How far the image is formed from the lens. (1)
 - Find the height of this image. (1)

OR

10. B. An object of height 2 cm is placed in front of a lens. A real image of height 5 cm is obtained 10 cm away from the lens. Find the
- Magnification of this image. (1)
 - Distance of the object from the lens. (1)
11. A. Lower the focal length of a lens, greater its power is. Do you agree with this statement. Justify your answer using simple mathematical operations. (2)

OR

11. B. An image is formed 100 cm away from the optic centre of a lens with power +2 D. A child remarked that the size of the image is half the size of the object. Do you agree with this. Justify your answer. (2)

Section - C

Answer the questions 12 to 17. There is a choice for questions 12 and 15. Each question carries 3 scores. (6 × 3 = 18)

12. A. A tuning fork has a natural frequency 288 Hz. When this tuning fork is excited and its stem is pressed on a table of natural frequency 88 Hz, the table also vibrates.
- What do you mean by natural frequency? (1)
 - Why does the table vibrate? (1)
 - What is the frequency at which the table vibrates? (1)

OR

12. B. When an excited tuning fork of natural frequency 256 Hz has its stem pressed on a metal plate of the same frequency, the plate vibrates.
- What will be the frequency of vibration of the plate? (1)
 - What would be the change in the vibration if the natural frequency of the plate is 200 Hz? Justify your answer. (2)

13. Write down three differences between transverse waves and longitudinal waves. (3)

14. Bats use ultrasonic sound for navigation.

- Write down four instances where we use ultrasonic waves. (2)
- Explain what ultrasonography is. (1)

15. A. Can human hear a wave produced by the oscillation of an object of period 1 s? Justify your answer. (3)

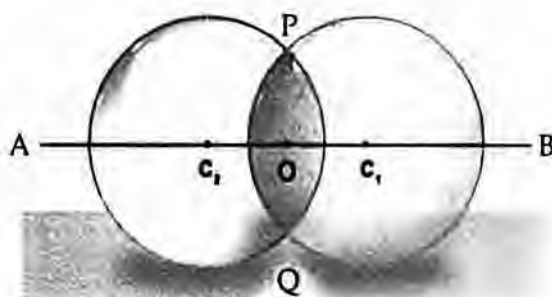
OR

15. B. The wavelength of a sound wave travelling with a speed of 350 m/s is 1 cm. How many regions of high pressure will this sound produce in one second? Can we hear this sound? Justify your answer. (3)

16. We have made use of various phenomena of sound waves.

- a) Write down 4 instances where forced vibration and resonance are utilised. (2)
- b) Write down 2 instances where the reflection of sound made use of. (1)

17. Observe the figure.



PQ is a lens.

- a) Explain what O, C_1 , C_2 and the straight line AB are. (2)
- b) Suggest an experiment to determine the principal focus of the lens shown in the figure. (1)

Section - D

Question 18 has a choice. Answer any 1 (4 scores).

(4 x 1 = 4)

18. A. A convex lens is a type of lens that can converge light rays.

- a) A convex lens can form real images only. Do you agree with this statement? Justify your answer. (1)
- b) A real image having 3 times the size of the object was obtained on a screen using a convex lens. If the distance between the object and the screen is 80 cm, what is the focal length of the lens? (2)
- c) Half portion of the aperture of a convex lens is covered with a paper. Is image formation possible using this lens. Justify your answer. (1)

OR

18. B. Concave lenses have a variety of uses.

- a) A concave lens can produce only virtual images. Do you agree with this statement. Justify your answer. (1)
- b) A concave lens produces an image having $1/3$ times the size of the object. If the object is 30 cm away from the lens, what is the focal length of the lens? (2)
- c) Where will the image of an object be formed if it is placed at principal focus of a concave lens? (1)