Summative Assessment – Term I 2025-26

Sample Question paper

Physics

Class : X **Time : 1 ½ hour**

Total Score : 40

Instructions:

- The first **15 minutes** is **cool-off time**. This time is meant for **reading the questions** and **planning your answers**.
- This question paper includes 18 questions in sections A, B, C and D
- Answer all questions. But questions **5, 11, 12, 13 and 18** contain **choices**.
- You need to **answer only one** of the options provided for each of these choice-based questions.

SECTION A

Write the correct answer by choosing from the given options for questions 1 to 4. Each question carries 1 score. **(4 x 1 = 4)**

1. Some statements are given about lenses. (1)

   i. Always produces a virtual image.

   ii. Produces a real image

   iii. The power will be negative,

   iv. magnification will be negative.

   What are the correct statements regarding Convex Lens ?

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

2. Which is correct about a wave moving with constant velocity? (1)

   a) Frequency decreases as wavelength increases,

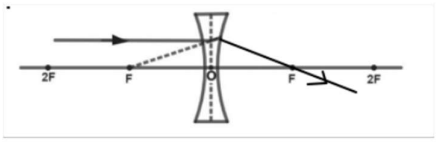
   b) As the wavelength increases the frequency also increases,

   c) As the wavelength increases the frequency remains unchanged,

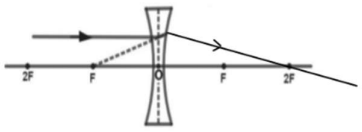
   d) As the wavelength decreases the frequency also decreases.

3. A ray of light passes parallel to the principal axis of a concave lens. (1)

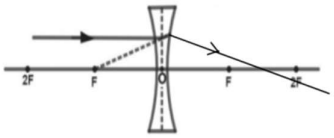
Which picture depicts correct path of the light ray?



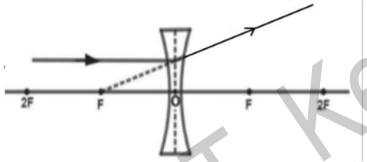
(a)



(b)

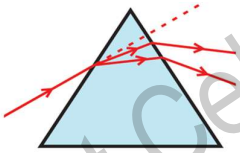


(c)



(d)

4. The deviation that occurs when a light ray passes through a prism is shown in the figure. (1)



What factors does the deviation of a light ray depend on?

i) Depends only on the refractive index of the medium.

ii) Depends only on the wavelength of the light.

iii) Does not depend on the refractive index of the medium and the wavelength of the light.

iv) Depends on the refractive index of the medium and the wavelength of the light.

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

SECTION B

Write the answers to questions 5 to 11. Questions 5 and 11 have choices. Each question carries 2 score. **(7 x 2 = 14)**

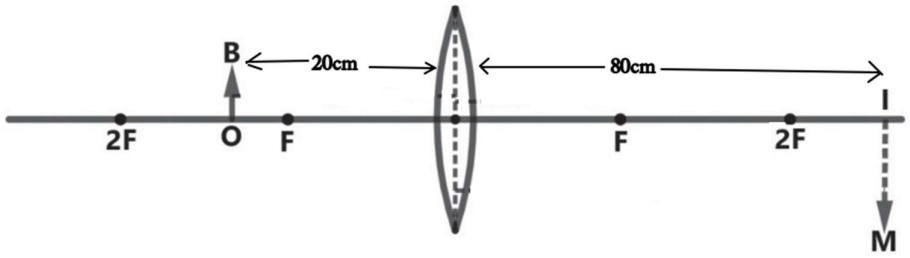
5 A. The prescription given by the doctor for the purchase of spectacles states +1.00 D.

(a) What is indicated in the prescription? What does D indicate? (1)

(b) What type of lens should be used in the spectacles? (1)

OR

5 B. Observe the picture. (2)



What is the focal length of the convex lens in the picture? (Use Cartesian Sign Convention)

6. If a simple pendulum takes 40 s to complete 10 oscillations,

   a) What will be its period? (1)

   b) How much will the frequency of another pendulum which is in resonance with this Pendulum? (1)

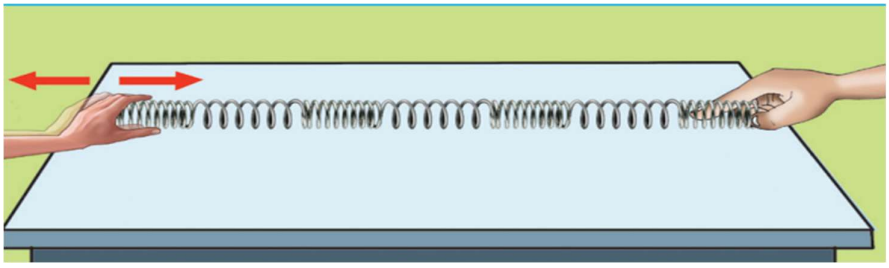
7. Earthquakes and volcanic eruptions often cause major disasters.

   a) What is the name given to the waves that travel through the earth's crust as a result of earthquakes and volcanic eruptions? (1)

   b) On which scale is the intensity of earthquakes recorded? (1)

8. A sonar signal is sent from a scuba diver and returns after reflecting off an obstacle in 0.5s. If the speed of sound in water is 1500 m/s, how far away is the obstacle? (2)

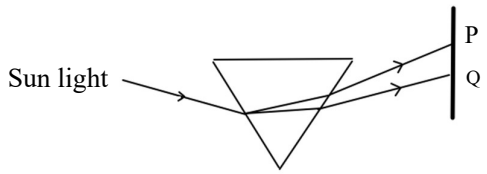
9. The figure shows a wave pattern travelling through a slinky with both ends pulled together.



   (a) What type of wave pattern is this? What are its characteristics? (1)

   (b) If 6 compressions and 6 rarefactions are formed in the slinky in 2 seconds, what will be the frequency of the wave in the slinky? (1)

10. In the figure, P and Q indicate the colors at the edges of the spectrum formed when sunlight passes through a prism.



a) What colors are seen at positions P and Q? (1)

b) What is the reason for the colors you found to be arranged at those positions? (1)

11 A. An object is placed between F and 2F of a convex lens.

a) Draw a diagram of the image formation. (1)

b) What are the characteristics of the image? (1)

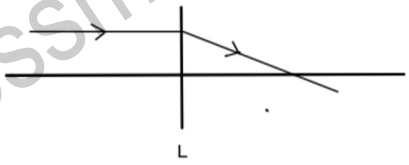
OR

11 B. An object 12 cm high is placed 28 cm from a concave lens of focal length 20 cm. Draw a diagram using a suitable scale. Measure and write the length of the image. (2)

SECTION C

Write the answers to questions 12 to 17. Question 12 and 13 have a choice. Each question carries 3 score. (6 x 3 = 18)

12.A. Observe the figure. In the figure, L indicates the lens.



(a) Which type of lens is indicated in the figure? Justify your answer. (1)

(b) What is the position of the image formed if an object is placed beyond 2F of the lens indicated in the figure? (1)

(c) If an image is formed, write any two of its characteristics. (1)

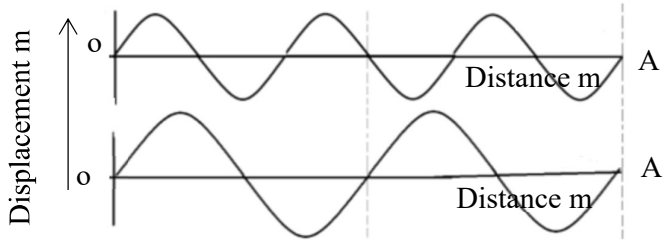
OR

12 B. The number indicating the magnification of the image obtained when an object is placed behind the principal focus of a lens is $\frac{+1}{3}$.

a) What type of lens is this? Justify your answer. (1)

b) Draw a diagram of the image formation if the object is placed at 2F. (2)

13 A. In the given graph, the distance from O to A is 60 m and the time taken to travel is 0.2 s. Then

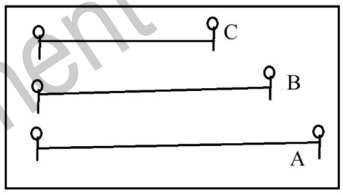


a) Find the frequency of each wave. (2)

b) Compare the velocities of the waves. (1)

OR

13 B. A board is shown with nails fixed to it and copper wires of the same thickness fixed to them with the same tensile force. Each wire has a paper rider. When a tuning fork with a frequency of 512 Hz is excited and its stem is pressed against the board, only the paper rider on wire B flew off.



a) What is the natural frequency of wire B? (1)

b) What is the natural frequency of wire A with respect to B? (1)

c) Write any two factors influencing natural frequency of a body. (1)

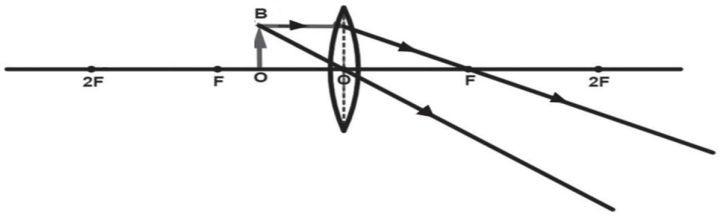
14. It is known that sunlight contains many types of radiation besides visible light.

a) Which type of radiation is responsible for the heat in the solar radiation? (X-rays, infrared radiation, ultraviolet radiation, gamma radiation) (1)

b) Which type of radiation helps in the production of vitamin D in our body? (1)

c) What is the speed of these radiations in vacuum? (1)

15. An object OB is placed between F and the lens of a convex lens.



(a) Complete the given figure. (2)

(b) Write two characteristics of the image. (1)

16. We know that a microscope is used to magnify small objects.

a) If you are making a microscope, what are the features of focal lengths of the convex lenses used as the eye piece and the objective?
(The focal length of the eyepiece and the objective are equal, The focal length of the eyepiece and the objective are very small, the focal length of the objective is greater than the focal length of the eyepiece, the focal length of the eyepiece is greater than the focal length of the objective) (1)

b) Explain how a large image of a small object is formed in a microscope. (2)

17. The focal length of a lens is 10 cm.

a) An object is located 15 cm from the lens. Calculate how far the screen should be located to obtain a clear image. (2)

b) If the height of the object is 1.2 cm, what will be the height of the image formed on the screen? (1)

SECTION D

Answer any one of the two questions. Each question carries 4 score. (4 x 1 = 4)

18 A There is a table with a natural frequency of 320 Hz and another table with the same surface area made up of the same material in a class room.

a) How many times per second will the table vibrate if you tap the table with a frequency of 320 Hz? (1)

b) Name the type of vibration produced on the first table, if the stem of an excited tuning fork of frequency 256 Hz pressed on it? (1)

c) When the same tuning fork is pressed on the second table, the sound from that table is heard loudly. Then what is the natural frequency of that table? Justify your answer. (2)

OR

18 B. It is found that the wavelength of sound travelling through the air at a speed of 350 m/s is 70 m, then

a) Can this sound be heard by humans? Validate. (1)

b) What is this type of sound known as? (1)

c) What is the audible range of sound that humans can hear? (1)

d) What is the name of a sound wave with a frequency higher than the audible range? (1)