Summative Assessment – Term III - 2025-26

SET - C

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 contains **18 questions.**
- In sections **A, B, C, and D**. **Choices** have been provided for questions **6, 8, 14, 17 and 18**
- For questions with a choice, you only need to answer **one** of them.

SECTION A

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

1. **Statement 1 :** When the number of turns of coils in a solenoid carrying a constant current increases, the total flux in the solenoid increases.

Statement 2 : When the number of turns of coils in a solenoid carrying a constant current increases, the flux through a single turn of coil does not increase. (1)

a) **Statement 1 and Statement 2** are correct.

b) **Statement 1 and Statement 2** are not correct.

c) **Statement 1** is correct, but **Statement 2** is not correct.

d) **Statement 1** is correct, but **Statement 2** is not correct.

2. Which of the following is the correct relationship when the phenomena in columns P and Q are appropriately paired? (1)

P	Q
A) Dispersion	i) The rainbow
B) Scattering	ii) Path of light is visible
C) Tyndall effect	iii) Blue colour of the sky
	iv) Persistence of vision

a) A-iii, B -ii, C-i

b) A-ii, B-iii, C-i

c) A-i, B-iii, C-ii

d) A-i, B-iv, C-iii

3. How many hours does an appliance of power 1000 W work to use 1 kilowatt-hour of electrical energy? (1)

4. Choose the correct statement associated with the wheel and axle mechanism, from the following? (1)

i) The mechanical advantage is greater than one.

ii) The work done by effort and the work done by load are equal.

iii) The effort arm is shorter than the load arm.

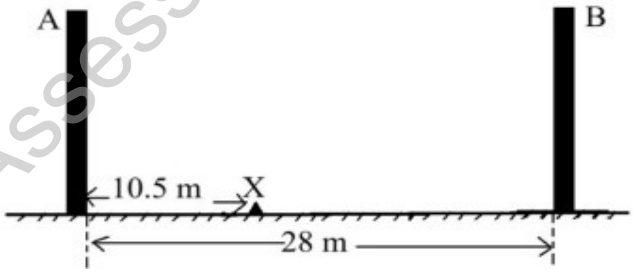
iv) The radius of the wheel is larger, and the radius of the axle is smaller.

a) i,ii and iii b) i, ii and iv c) ii, iii and iv d) i, iii and iv

SECTION B

Answer questions from 5 to 11. Questions 6 and 8 have a choice. Each question carries 2 score. (7 x 2 = 14)

5. Observe the picture.



A and B are two walls. The distance between them is 28 m. A person claps at a position marked X. The distance from the wall A to X is 10.5 m.

a) Which wall produces the first echo that can be clearly heard by the person? (1)

b) How much time will it take to hear the first echo of the clap?
(Consider the speed of sound in air as 350 m/s). (1)

6A. Following lenses are given to you.

- Convex lens with focal length 100 cm
- Concave lens with focal length 100 cm
- Convex lens with focal length 10 cm
- Concave lens with focal length 10 cm

Select the suitable lenses for the objective and eyepiece to construct a telescope. Justify your answer. (2)

OR

6 B. A compound microscope magnifies objects.

a) Where must an object be placed with reference to the objective lens? (1)

(At F, between F and 2F, beyond 2F, between F and the lens)

b) Why should the object **not** be placed at any of the other given positions? (1)

7. What is meant by carbon footprint? Suggest any one method to reduce the carbon footprint. (2)

8 A. An object appears green in green light, red in red light, and dark in blue light.

a) What is the colour of this object in white light? Why? (1)

b) In which colour will this object appear in cyan light? Why? (1)

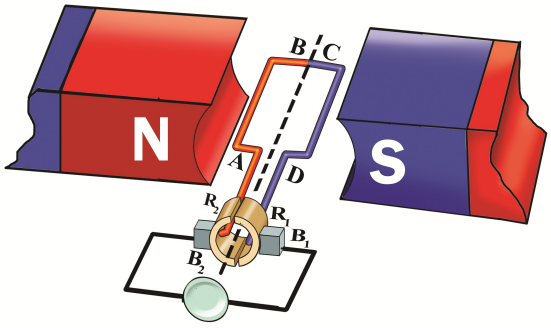
OR

8 B. White light is passed through a magenta filter, then through a yellow filter, and finally through a red filter, and projected onto a white wall.

a) Which colours of light will pass through the magenta filter? Why? (1)

b) Which colour will fall on the white wall? Why? (1)

9. Observe the figure.



a) What form of electricity is obtained in the external circuit when the armature of this device rotates? Justify the answer. (1)

b) If the armature is kept stationary and the field magnet is rotated, what form of electricity will be obtained in the external circuit? What is the reason? (1)

10. A transformer without any power loss operating at 240 V has 3000 turns in the primary and 750 turns in the secondary.

a) What is the voltage across the secondary? (1)

b) If the power in the secondary is 480 W, what is the primary current? (1)

11. The important part of a safety fuse is the fuse wire.

a) What are the properties of a fuse wire? (1)

b) What situations could lead to an excessive current that causes a fuse wire to melt? (1)

SECTION C

Answer questions 12 to 17 each question carrying 3 score. Questions 14 and 17 have choices. (6 x 3 = 18)

12. The distance between a compression and the adjacent rarefaction of a sound wave is 17.5 cm. This wave takes 2 s to travel a distance of 1400 m.

a) What is the wavelength of the wave? (1)

b) What is the frequency of the wave? (2)

13. An object placed in front of a lens produces an erect image. Here magnification is ½.

a) What is the height of the object compared to the height of the image? (1)

(Half / Double / Same size / Four times)

b) Draw the image formation in this case. (2)

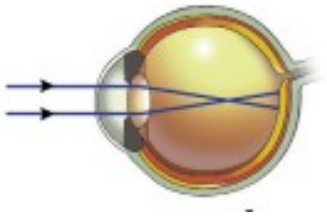
14 A. a) What is the distance to the near point for a healthy human eye? (1)

b) How does this distance change for a person suffering from presbyopia? (1)

c) The power of accommodation for them is (higher/lower). (1)

OR

14 B. Observe the figure.



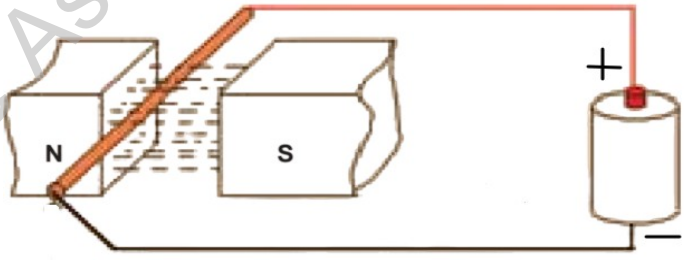
a) Where is the far point of individuals with this defect? (1)

(At Infinity / At a certain distance from the eye / 25 cm)

b) Write two reasons for this defect. (1)

c) How can this defect be corrected? (1)

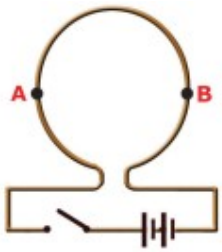
15. Observe the figure showing a conductor connected to battery and placed between the magnetic poles N and S.



a) What is the direction of force on the conductor? Which law helped to find this? (2)

b) Explain why the conductor is moving in this direction. (1)

16. A conducting wire AB is bent in the form of a loop. The two ends of this wire are connected to a battery.



a) What is the direction of the magnetic field formed around the conductor at points A and B when the switch is turned on? (1)

b) Explain how will you determine the direction of the magnetic field when current passes through the conducting loop. (2)

17A. An electric heating appliance marked 800 W, 240 V operates for 10 minutes.

a) Calculate the quantity of heat produced. (1)

b) What will be the power of the appliance if the voltage is 120 V? (2)

OR

17B. A heating appliance is marked 1000 W, 230 V.

a) What does it mean? (1)

b) What will be the resistance of this appliance? (1)

c) If we change the labelling of the same device as 250 W, X ; find the value of X? (1)

SECTION D

Answer any 1 question. Each carries 4 score. (4 x 1 = 4)

18A. A 1200 kgwt load is lifted to the top of a 3 m high building using a 9 m long inclined plane.

a) How much force is required to lift this load along the inclined plane? (2)

b) Prove that there is no gain in work in using the inclined plane during this process. (2)

OR

18B. Screw Jacks are used to lift objects easily. 30 cm length of the threaded region of the screw contains 15 screw threads. The length of each thread is 10 cm.

a) What is meant by pitch of a screw? (1)

b) Calculate the mechanical advantage of this screw jack. (3)