SECOND TERM SUMMATIVE ASSESSMENT 2026-27

MODEL QUESTION PAPER

PHYSICS

Std: X SET 1 **Score: 40**

Cool-off time: 15 minutes **Time: 1½ Hours**

Instructions

- The first 15 minutes is cool-off time. Use it to read the questions and plan your answers.
- Answer according to the instructions and the score given for each question.
- For questions with a choice (A or B), answer only one.

Answer all questions from 1 to 4. Each question carries 1 score. **(4 × 1 = 4)**

1. Which of the following is the commercial unit of electrical energy? (1)

A. joule B. watt C. kilowatt hour D. volt

2. Assertion (A): The clear sky appears blue during the day. (1)

Reason (R): Light of shorter wavelength is scattered more by the particles in the atmosphere.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not the correct explanation of A.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

3. Some statements about the magnetic field around a straight current-carrying conductor are given. (1)

(i) The magnetic field lines are concentric circles around the conductor.

(ii) The field becomes stronger as we move away from the conductor.

(iii) When the direction of current is reversed, the direction of the field also reverses.

(iv) The field does not depend on the strength of the current.

Choose the correct statements.

A. (i) and (ii) B. (i) and (iii) C. (ii) and (iv) D. (iii) and (iv)

4. Match the devices in column A with the principle/effect in column B. (1)

A	B
a) Electric heater	(i) Electromagnetic induction
b) Electric motor	(ii) Heating effect of current
c) AC generator	(iii) Motor principle

A. a-(ii), b-(iii), c-(i) B. a-(iii), b-(ii), c-(i)

C. a-(i), b-(iii), c-(ii) D. a-(ii), b-(i), c-(iii)

Answer all questions from 5 to 11. Questions 7 and 11 have choice. Each question carries 2 scores. **(7 × 2 = 14)**

5. A sound of frequency 170 Hz travels through air with a speed of 340 m/s.

a) Find the wavelength of the sound. (1)

b) What happens to the wavelength if the frequency is doubled, the speed remaining the same? (1)

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6. A rainbow is seen in the sky after a shower.

a) Name the two phenomena of light that take place in the water droplets to form a rainbow. (1)

b) Where will the Sun be when you see a rainbow in the sky? (1)

7. (A) A solenoid carries an electric current.

a) Write any two ways to increase the strength of its magnetic field. (1)

b) Name the device made by keeping a soft iron core inside a solenoid. (1)

OR

(B) State the Right-Hand Thumb Rule. What do the thumb and the curled fingers indicate? (2)

8. A fuse is used in household circuits.

a) What property should the material of a fuse wire have? (1)

b) Why is the fuse always connected in series with the circuit? (1)

9. Rani's family replaced all their CFL lamps with LED lamps.

a) Give one reason why LED lamps help to save energy. (1)

b) Suggest one more way to conserve electrical energy at home. (1)

10. A bar magnet is pushed into a coil connected to a galvanometer.

a) What do you observe in the galvanometer? (1)

b) What will happen if the magnet is kept at rest inside the coil? Why? (1)

11. (A) A current-carrying conductor is placed in a magnetic field.

a) Name the rule used to find the direction of the force on the conductor. (1)

b) What are the directions indicated by the forefinger and the middle finger? (1)

OR

(B) Write two differences between alternating current (AC) and direct current (DC). (2)

Answer all questions from 12 to 17. Questions 12 and 17 have choice. Each question carries 3 scores. (6 × 3 = 18)

12. (A) An object is placed 30 cm in front of a convex lens of focal length 20 cm.

a) Find the distance of the image from the lens. (2)

b) Write the nature of the image. (1)

OR

(B) The power of a lens is −2 D.

a) Find its focal length. (1)

b) Which type of lens is this? (1)

c) Name the defect of vision that this lens can correct. (1)

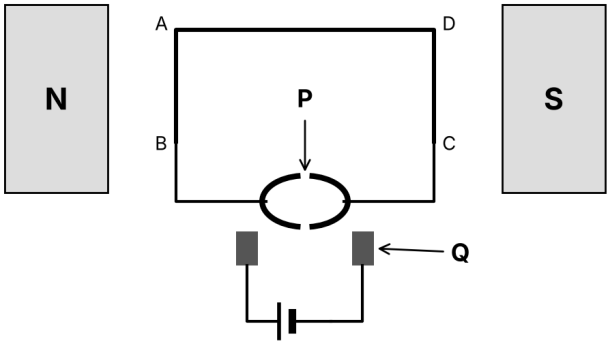
13. Red, green and blue are called the primary colours of light.

a) What colour is obtained when red and green lights are mixed? (1)

b) A red rose is seen in green light. What will be its colour? Explain. (2)

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14. The figure shows the main parts of a simple DC electric motor.



a) Name the parts marked P and Q. (1)
b) What is the function of the part P? (1)
c) Write any one way to increase the speed of rotation of the coil. (1)

15. A house uses the following appliances every day:
- one electric iron of 1000 W for 1 hour
- four bulbs of 40 W each for 5 hours
- two fans of 60 W each for 8 hours

Calculate the cost of electricity for 30 days if one unit costs ₹ 6. (3)

16. A current of 2 A flows through a resistor of 50 Ω for 5 minutes.
a) Calculate the heat produced. (2)
b) How many times will the heat be if the current is doubled? (1)

17. (A) The primary coil of a transformer has 200 turns and the secondary has 1000 turns. The input voltage is 220 V.
a) Find the output voltage. (1)
b) Is this a step-up or step-down transformer? (1)
c) Why is the core of a transformer made of thin laminated sheets? (1)

OR

(B) An AC generator works in a power station.
a) What is the principle of an AC generator? (1)
b) Which parts help to take the alternating current from the rotating coil to the outer circuit? (1)
c) What is meant by saying that the frequency of AC in India is 50 Hz? (1)

Question 18 has choice. It carries 4 scores. **(1 × 4 = 4)**

18. (A) A moving coil loudspeaker is used in a public address system.
a) On which principle does it work? (1)
b) Write the energy change that takes place in it. (1)
c) What happens to the voice coil when alternating current from the amplifier flows through it? (1)
d) Name the device in the public address system that works on the principle of electromagnetic induction. (1)

OR

(B) Two coils are wound on the same soft iron core. The primary coil is connected to a battery and a switch, and the secondary coil to a galvanometer.
a) What do you observe in the galvanometer at the moment the switch is closed? (1)
b) What do you observe while the switch remains closed? Why? (1)

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c) What change will you see if an AC source is used instead of the battery? (1)

d) Name this phenomenon. (1)

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