



PHYSICS

Set B

PART A – Focus area questions

PART B – Other area (Out of focus area)

PART 1A

Questions 1 to 6. **Answer any four questions.** Each question carries 1 score (4×1=4)

- Find the relation in the first pair and complete the second pair. 1
 - Electric bulb: Electrical energy → light energy
 - Electric iron box: Electrical energy →
- Fuse wire is an alloy of 1
- In our country, electricity is produced at V in power stations. 1
(230 V, 11000 V, 11 V, 400V)
- Which among the following has maximum field of view? 1
(Concave mirror, plane mirror, convex mirror, none of these)
- The near point of an eye with healthy vision is 1
- The mid point of a lens is called 1

PART 1B

Questions 7 to 9. **Answer all questions.** Each question carries 1 score (3×1=3)

- Which principle will help you to find out the direction of motion of a current carrying conductor situated in a magnetic field? 1
- If a point object is placed in between two plane mirrors arranged in 90° , number of images are formed are 1
(1, 2, 3, 4)
- For elderly people the power of accommodation will be less due to ageing. This is called 1

Very short answer type questions

PART 2A

Answer the following question

(1×2=2)

10. Write any two factors that influence the strength of magnetic field around a current carrying solenoid. (2 score)

PART 2B

Questions 11 and 12. **Answer any one question.** (2 score)

(1×2=2)

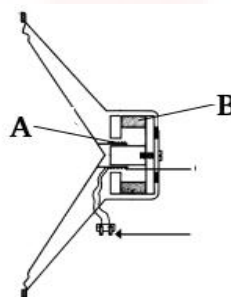
11. What properties of tungsten make it suitable for being used as a filament in incandescent lamps? (2 score)
12. An electrical device which is marked 100 W, 230 V.
a) What does this marking means? (1 score)
b) Calculate the energy consumption by this device when it works for 5 hour. (1 Score)

Short answer type questions

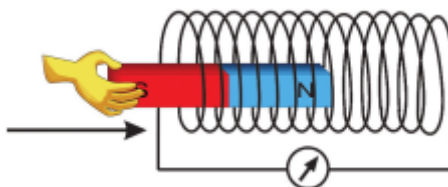
PART3A

Questions 13 to 16. **Answer any three questions.** Each question carries 3 marks. (3×3=9)

13. Observe the diagram of moving coil loud speaker and answer the following questions.



- a) The energy change in a moving coil loud speaker is (1 score)
b) What is the working principle of moving coil loud speaker. (1 score)
c) Label the parts ' a and b'. (1 score)
14. A magnet is moved into a solenoid connected with a galvanometer as shown in the figure given below.



- a) While moving the bar magnet into the solenoid, the galvanometer needle deflects. Name the phenomenon behind this. (1 score)

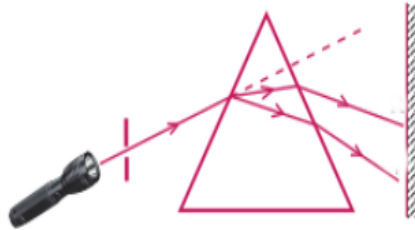
b) Write any two factors affecting the induced emf. (2 score)

15. The critical angle in glass is 42° .

a) When a ray of light entering air from glass at 28° , which phenomenon takes place?
(Refraction, total internal reflection) (1 score)

b) Write any two practical applications of total internal reflection in our day today life. (2 score)

16. White light from a torch is allowed to fall on a glass prism as shown below.



a) Which phenomenon of light is associated with this? (1 score)

b) Which colour deviates the least? Explain based on wavelength. (2 score)

PART3B

Answer question 17. One question carries 3 marks. (1×3=3)

17. Fuse wire of appropriate amperage should be used in safety fuse.

a) Amperage with the thickness of the conductor. (1 score)
(Increases, decreases)

b) How will you calculate the amperage of a fuse wire in a circuit? (1 score)

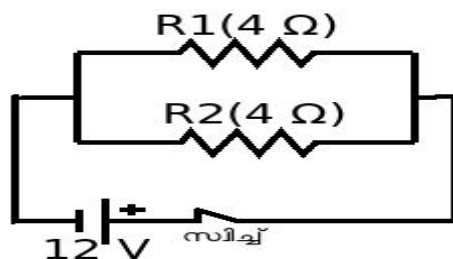
c) An electric heater having a power 690 W is working in a potential difference of 230 V.
Which among the following amperage should be used as fuse wire in this circuit?
(2, 2.5, 3, 3.5) (2 score)

Long answer type questions

PART4A

Questions 18 to 20. **Answer any two.** Each question carries 4 score. (2×4=8)

18. Observe the figure and answer the following questions.



a) In which method resistors are connected in the circuit? (1 score)

b) Calculate the effective resistance of the circuit. (1 score)

c) What is the potential difference across the resistor R_1 ? (1 score)

d) Calculate the total current flowing through the circuit. (1 score)

19. When an object of height 6 cm is placed in front of a concave mirror at a distance 10 cm away from it, an image is obtained 15 cm away on the same side.
- Write the mirror equation. (1 score)
 - Using New Cartesian sign convention, write down the distance between the object and the mirror and the distance between the image and the mirror. (1 score)
 - Calculate the focal length of the mirror. (1 score)
 - Calculate the magnification. (1 score)

20. When an object is placed in front of a convex lens, the image is formed at $2F$.
- Based on the position of the image, where is the position of the object? (1 score)
 - Write any two characteristics of the image. (1 score)
 - In which unit power of a lens is measured? (1 score)

PART 4B

Questions 21 and 22. **Answer any one question.** One question carries 4 score. (1×4=4)

21.
 - What are the first aids to be given in the case of electric shock? (Write any two) (2 score)
 - What are the precautions to be taken while operating electrical devices? (2 score)
22.
 - What is meant by absolute refractive index? (1 score)
 - Calculate the refractive index of glass. (2 score)
(Speed of light in air = 3×10^8 m/s, speed of light in glass = 2×10^8 m/s)
 - The ratio of the sine of the angle of incidence to the sine of the angle of refraction will always be a constant. Name the law. (1 score)

Essay type questions

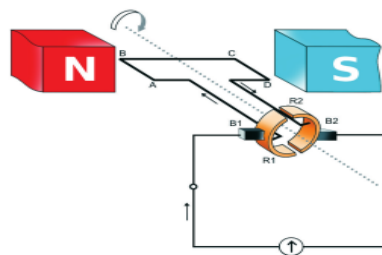
PART 5

Question 23 and 24. Answer any one. (5 score) (1×5=5)

23. The power of a device working at 230 V is 800 W.
- Calculate the current flowing through this device. (1 score)
 - Calculate the resistance of this device. (1 score)
 - Calculate the amount of heat produced by this device if it works for 10 s. (2 score)
 - What will be the power of this device if the voltage is reduced to 100 V? (1 score)

24. Observe the figure given below and answer the following questions.

- Name the generator given in the figure. (1 score)
- What is the energy change taking place in this generator? (1 score)
- Draw the graphical representation of emf obtained from this generator. (1 score)
- Write any two differences between the emf obtained from this generator and emf obtained from a battery/cell. (2 score)



(2 score)