ME 535

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2026
PHYSICS
(English)

Time : 1½ Hours

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, 9, 13, 15 and 18.
- For questions with a choice, you only need to answer one of them.

SECTION - A

Score

Write answer for all questions From 1 to 4. Each question carries 1 Score.

4x1=4

1. **Assertion (A) :** When sunlight is allowed to pass through prism, the deviation taking place is not the same for all the colours.   **1**

   Reason (R) : The extent of deviation produced for each colour at the two sides of the prism will be different depending on the wavelength of light.

   Choose the **correct** option from the following :

   (a) **(A)** is correct, but **(R)** is incorrect.

   (b) **(A)** is incorrect, but **(R)** is correct.

   (c) Both **(A)** and **(R)** are correct and **(R)** explains **(A)**.

   (d) Both **(A)** and **(R)** are correct, but **(R)** does not explain **(A)**.

2. A transformer has 200 turns in the primary and 1000 turns in the secondary. The voltage   **1**
   induced in one turn in the secondary is 0.5 V.

   See the following regarding this transformer given below.

   (i) $V_P = 100$ V - Step down - $V_S = 500$ V

   (ii) $V_P = 100$ V - Step up - $V_S = 500$ V

   (iii) $V_P = 500$ V - Step down - $V_S = 100$ V

   (iv) $V_P = 500$ V - Step up - $V_S = 500$ V

   Which among the following is **correctly** matched ?

   (a) (ii) Only

   (b) (iv) Only

   (c) (ii) and (iii)

   (d) (i) and (iv)

P.T.O.

3. Match **Column A** with **Column B** :

Column A		Column B	
(1)	Conductivity	(i)	Ω m
(2)	Joule heating	(ii)	$\dfrac{1}{\text{Resistivity}}$
(3)	Resistivity	(iii)	High oxidation resistance
(4)	Heating element	(iv)	Ohmic heating

Which of the following is **correct** ?
(a) (1)-(iv), (2)-(i), (3)-(iii), (4)-(ii)
(b) (1)-(ii), (2)-(iv), (3)-(iii), (4)-(i)
(c) (1)-(iii), (2)-(iv), (3)-(ii), (4)-(i)
(d) (1)-(ii), (2)-(iv), (3)-(i), (4)-(iii)

4. Regarding the current carrying Solenoid some statements are given. Read them   **1**
carefully.
(i) The magnetic strength increases when current increases
(ii) When the number of turns per unit length increases, total flux increases
(iii) When the number of turns in a Solenoid carrying constant current increases, the
flux through a single turn of coil increases.
(iv) When soft iron is used as core, magnetic strength increases.
Which of the options (a), (b), (c), (d) is correct ?
(a) (i), (ii), (iii)
(b) (ii), (iii), (iv)
(c) (i), (ii) (iv)
(d) (i), (iii), (iv)

SECTION - B

**Answer questions from 5 to 11. Questions 6 and 9 have choices. Each question carries
2 Score.**   **7x2=14**

5. The sound of a person clapping at a point X takes 0.02s to reach the wall A.

(a) How far is the wall A from X ? (Consider the speed of sound in air as 350 m/s)   **1**
(b) Can this person standing at X hear the echo produced by the reflection from the   **1**
wall A after hearing the initial sound ? Why ?

6. (A) In a doctor's prescription to buy spectacles, − 4.00D is indicated.

    (a)   What type of lens is to be used in the spectacles ?   1

    (b)   Calculate the focal length of that lens.   1

OR

(B) The power of a lens is related to the ability to converge or diverge light rays   **2**
incident on it. Calculate the power of a concave lens of focal length 50 cm.

7. What is the main problem faced while transmitting electricity over long distances using   **2**
conducting wires ? How can this problem be solved ?

8. The diameter of a pulley is 10 cm.

    (a)   When it is used as a fixed pulley, what will be its mechanical advantage ?   **1**

    (b)   If it is used as a movable pulley, what will be its load arm ? What will be its effort   **1**
arm ?

9. (A) The direction of magnetic field around a current carrying conductor AB is marked
in the figure.
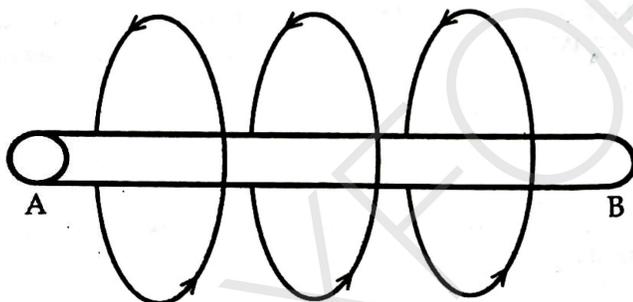
    (a)   Find the direction of electric current through AB.   **1**

    (b)   Which rule helped you to find this ? State the rule.   **1**

OR

(B) When current is passed through the conductor AB, the direction of deflected north
poles of compasses placed on the cardboard was observed in anticlockwise
direction.
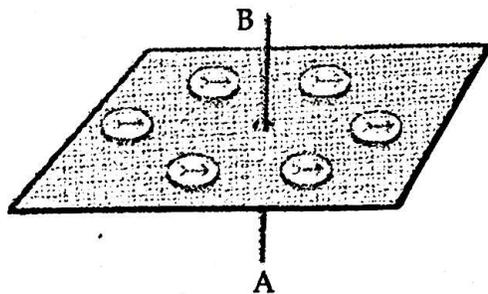
    (a)   What is the direction of current ?   **1**

    (b)   Why do the magnetic needles deflect when current passes through AB ?   **1**

P.T.O.

Score

10. A heating appliance operating at 200 V produces 12000 J heat in 1 minute. Calculate   **2**
the resistance of the appliance.

11. The near point of the eye of a child is 34 cm.
    (a)   What are the reasons for this defect ?   **1**
    (b)   How can this defect be rectified ?   **1**

SECTION - C
Answer questions from 12 to 17. Questions 13 and 15 have choices. Each question
carries 3 Score.   **6x3=18**

12. When a candle flame is placed near a lens, a magnified and erect image could be viewed
    through the lens.
    (a)   Is this image real or virtual ?   **1**
    (b)   Can the same lens be used to form an image having equal size of the object ?   **2**
          Prove with the help of ray diagram.

13. (A) (a) What is meant by primary colours of light ?   **1**
         (b) Name any two primary colours of light.   **1**
         (c) Which is the secondary colour formed when the primary colours you have   **1**
              written are combined ? What is the complementary colour of that secondary
              colour ?

         OR

    (B) In sunlight, the leaves of a plant in a red coloured Flower pot appeared green and
         the flowers appeared yellow.
         (a) When observed through a yellow filter, in which colour will the leaves and   **2**
              flowers appear ? Justify your answer.
         (b) In which coloured light will the flower pot appear dark and the leaves and   **1**
              flowers appear green ?

14. We need to reduce carbon footprint to pass on a habitable Earth to Future generations.   **3**
    Suggest three ways to reduce carbon footprint.

15. (A) (a) What is the workdone to lift vertically an object having weight 400 N to the   **1**
              position A ?
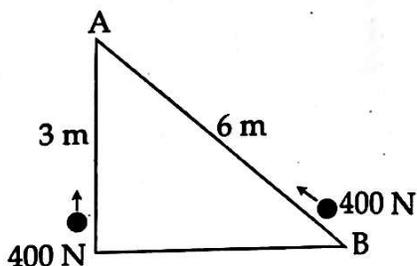

         (b) Calculate the effort required to move another object of the same weight from   **2**
              B to A along the inclined plane shown in the figure.
   **OR**

(B) The height of the screw in a screw jack is 30 cm. There are 10 threads in the screw. The length of one thread is 15 cm.

(a) How much is the pitch of the screw ? 　　　　　　　　　　1

(b) How much is the mechanical advantage of this screw ? 　　1

(c) If a vehicle of weight 10000 N is lifted using this screw jack, Calculate the effort. 　　　　　　　　　　　　　　　　1

16. (a) Which is the graphical representation of emf obtained from the armature when a DC generator works ? 　　　　　　　　1

(a)　　　　　　(b)　　　　　　(c)
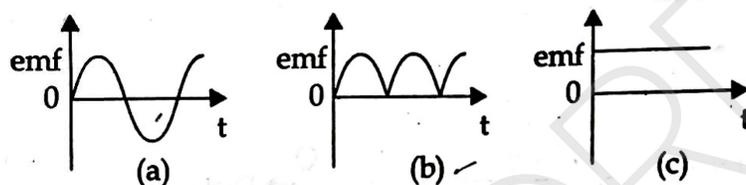
(b) If the armature of the DC generator is kept stationary and the field magnet is rotated, which will be the graphical representation of emf obtained in its external circuit ? Justify your answer. 　　　　　2

17. An acrylic sheet is kept above the south pole of a magnet. Two copper rods connected to a battery are placed above the sheet. AB is another copper rod placed above them as shown in the figure.
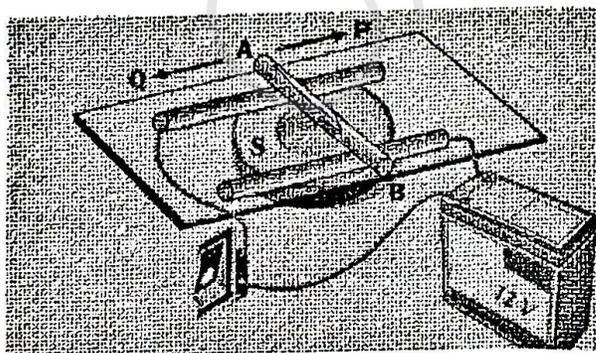
(a) When the Switch was turned on, AB was seen rolling towards P. What would have been the direction of current through AB ? 　　1

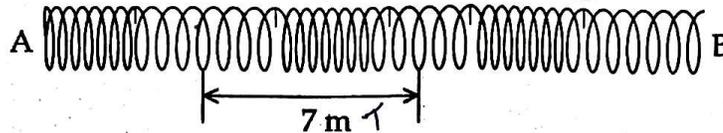(b) Suggest two methods to reverse the direction of its rolling 　　2

SECTION - D

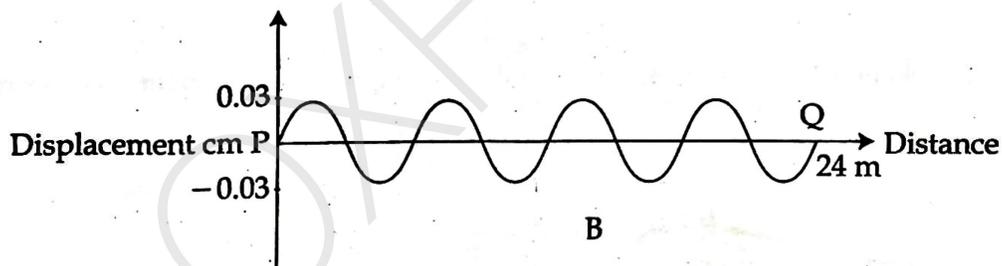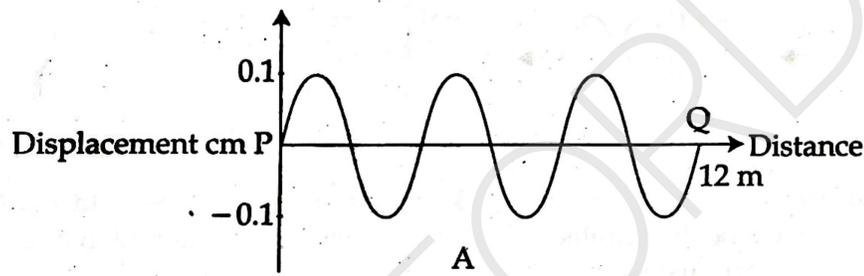**Answer any 1 questions. Each question carries 4 scores.** 4x1=4

(18) (A) Wave formed in a slinky is shown in the figure.

A 〜〜〜〜〜〜〜〜〜〜〜〜〜〜〜 B

7 m

  (a) What type of wave is shown in the Figure ? Does this need a medium for its propagation ? 1

  (b) What is the wavelength of this type of wave ? 1

  (c) The wave shown in the figure takes 2s to reach B from A. Calculate the speed fo wave . 2

OR

(B) Observe the waves forms.

0.1

Displacement cm P

Q

Distance

12 m

−0.1

A

0.03

Displacement cm P

Q

Distance

24 m

−0.03

B

  (a) Which is the wave with lower amplitude ? 1

  (b) Both the waves A and B take 12 s to reach Q from P. Find out and compare the frequency of both waves. 1

  (c) Calculate the speed of wave of both A and B. 2

-oOo-