केन्द्रीय माध्यमिक शिक्षा बोर्ड, दिल्ली
सैकण्डरी स्कूल परीक्षा (कक्षा दसवीं)
परीक्षार्थी प्रवेश - पत्र के अनुसार भरें

CENTRAL BOARD OF SECONDARY EDUCATION, DELHI

Secondary School Examination (Class X)

To be filled in by the Candiate as per Admit Card

लिखें तथा संगत गोले को पूरे गहरे निशान से भरें ।

Write and darken the appropriate circle as applicable

क्रम संख्या Serial No. : 70

विषय Subject : Science

विषय कोड Subject Code : 086

परीक्षा का दिन एवं तिथि
Day & Date of the Examination : Saturday - 6/12/2025

उत्तर देने का माध्यम
Medium of answering the Paper : English

प्रश्न पत्र के ऊपर लिखें कोड को दर्शाएँ:
Write code No. as written on the top of the question paper

Code Number	Set Number
1	● 2 3 4

अतिरिक्त उत्तर - पुस्तिका (ओं) की संख्या
No.of supplementary answer-book(s) used :

विकलांग व्यक्ति : हाँ / नहीं
Person with Benchmark Disabilities : Yes / No : NO

विकलांगता का कोड (प्रवेश पत्र के अनुसार)
Code of Disability (as per the Admit card) : -

क्या लेखन - लिपिक उपलब्ध करवाया गया: हाँ / नहीं
Whether writer provided : Yes / No : NO

यदि दृष्टिहीन हैं तो उपयोग में लाए गये सॉफ़्टवेयर का नाम :
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* परीक्षार्थी का नाम बड़े अक्षरों में Candidate's Name in CAPITAL Letters : MANDLA TARUN

अनुक्रमांक Roll No. : 1189076

As per Admit Card

विषय कोड Subject Code : 086

केन्द्र संख्या Centre No. :

* एक खाने में एक अक्षर लिखें । नाम के प्रत्येक भाग के बीच एक खाना रिक्त छोड़ दें । यदि परीक्षार्थी का नाम 22 अक्षरों से अधिक है, तो केवल नाम के प्रथम 22 अक्षर ही लिखें ।
Each letter be written in one box and one box be left blank between each part of the name. In case Candidate's Name exceeds 22 letters, write first 22 letters only.

Write within the box

विषय Subject :

School No. as per admit card :
विद्यालय संख्या जैसा प्रवेश पत्र में दिया गया है ।

अनुक्रमांक (शब्दों में) Roll No : ..... Crore ..... Lakhs ..... Thousands.....

पिता/संरक्षक का नाम Father's/Guardian's Name : Mandla Sreenivasulu

परीक्षार्थी के हस्ताक्षर Signature of Candidate : Tarun

Please Do not write beyound this line

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इस पृष्ठ पर परीक्षार्थी द्वारा भरे गए विवरण की जांच कर ली गई है ।
All the particulars filled in by the candidate on this page have been verified.

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Signature of Asstt. Supdt.

अधीक्षक की मोहर
Fucsimile stamp of the Centre Supdt.

कृपया पीछे की तरफ 'परीक्षार्थी के लिए निर्देश पढ़ें । Please read "Instructions to Candidates" on back side.

केन्द्रीय माध्यमिक शिक्षा बोर्ड, दिल्ली
Central Board Secondary Education, Delhi
SECONDARY SCHOOL EXAMINATION (CLASS X)
सैकण्डरी स्कूल परीक्षा (कक्षा दसवीं)

Che – 23
P – 22½
B = 24½

Q .No.	01	02	03	04	05	06	07	08	09	10	TOTAL
MARKS											

Q .No.	11	12	13	14	15	16	17	18	19	20	TOTAL
MARKS											

Q .No.	21	22	23	24	25	26	27	28	29	30	TOTAL
MARKS											

Q .No.	31	32	33	34	35	36	37	38	39	40	TOTAL
MARKS											

TOTAL MARKS IN WORDS	GRAND TOTAL	70

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका का मूल्यांकन प्रश्न पत्र के सही सेट एवं अंक योजना के अनुसार किया है और उत्त र पुस्तिका के अंदर कोई भी प्रश्न बिना मूल्यांकन के नहीं छोड़ा गया है। इसके अलावा, अंक सही ढंग से पोस्ट किए गए हैं। मैंने अनुद शों के अनुसार कार्य पूरा किया है।

I certify that I have evaluated this answer book according to the correct set of question paper, strictly as per marking scheme and no question ha been left un-assessed inside the answer book. Also, marks have been correctly posted. I have completed the ass nn ent as per instructions.

परीक्षक-1 के हस्ताक्षर Signature of Examiner - 1 _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका के मूल्यांकन की गुणवत्ता की जाँच की और यह अंकन योजना में विस्तृत निर्देशों और मूल्य बिन्दुओं के अनुसार है।

I certify that I have checked the quality of evaluation of this answer book and it is according to the instructions and value points detailed in the Marking Scheme (s)

अतिरिक्त मुख्य परीक्षक (मूल्यांकन) के हस्ताक्षर
Signature of AHE (Evaluation) _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका की जाँच की है और पाया कि इसमें बिना मूल्यांकन वाला कोई भाग नहीं है, ज्ञ योग सही है। आवरण पृष्ठ पर अंकों की प्रविष्टि सही है, उत्तर पुस्तिका के आवरण पृष्ठ पर पंक्तियों व स्तंभों में योग सही है। लिंक पर सही अंक अपलोड किए गए हैं। मैं यह भी प्रमाणित करता/करती हूँ कि अब इस उत्तर पुस्तिका में कोई जाच त्रुटि नहीं है।

I certify that I have checked this answer book and found that it does not have any unevaluated part, totaling inside is correct. Posting of marks on the cover page is correct, totaling on cover page in row and column of the answer book is correct. Correct marks have been uploaded on the link. I also certify that there is no scrutiny mistake in this answer book now.

समन्वयक के हस्ताक्षर Sign. of Coordinator _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका की जाँच की, जिसकी (प्रासंगिक स्तंभ (✓) द्वारा जाँच की गयी है और पाया गया है कि (i) इसका मूल्यांकन निर्देशों के अनुसार किया गया है और (ii) संवीक्षा ढंग से की गई है और उसके बाद सही अंक अपलोड किए गए हैं।

I certify and I have checked this answer book which has been checked by [put (✓) in relevant column] and found that (i) It has been evaluated as per instructions and (ii) Scrutiny has been done correctly and thereafter correct marks have been uploaded.

- ☐ परीक्षक Examiner
- ☐ समन्वयक Coordinator
- ☐ समन्वयक (डीई) Coordinator (DE)
- ☐ अतिरिक्त मुख्य परीक्षक (मूल्यांकन) AHE (Evaluation)
- ☐ अतिरिक्त मुख्य परीक्षक (समन्वयक)AHE (Coordinator)

मुख्य परीक्षक के हस्ताक्षर Signature of HE _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका की जाँच मूल्यांकन की गुणवत्ता का पता लगाने के लिए की है। मूल्यांकन अनियमित नहीं है, इस उत्तर पुस्तिका का कोई भी भाग बिना मूल्यांकन के नहीं है, इसकी जांच प्रश्न पत्र के सही सेट के साथ एवं पूरी तरह से अंक योजना के अनुसार की है।

☐ अधिकतम थ्योरी अंकों जिनमें 96% से 100% अंक प्राप्त हों उन उत्तर पुस्तिकाओं की जाँच की और सही पाया।

I certify that I have checked this answer book to ascertain quality of evaluation. Evaluation is not erratic, there is no unevaluated part in this answer book, it has been checked with the correct set of question paper and strictly as per marking scheme.

☐ Also checked the answer book awarded 96% to 100% marks of maximum theory marks and found correct.

परीक्षक-2 के हस्ताक्षर Signature of Examinar-2 _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि लिंक पर सही अंक अपलोड किए गए हैं और उत्तर पुस्तिका और अवार्ड सूची के अंक समन्वयक के साथ भी मिलान किए गए हैं और सही पाए गए हैं।

I certify that the correct marks have been uploaded on link and marks on answer book and award list have also been compared with coordinator and found correct.

समन्वयक (डीई) के हस्ताक्षर Sign. of Coordinator (DE) _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर पुस्तिका की जाँच की है और पाया कि इसमें बिना मूल्यांकित कोई भाग नहीं है, अंदर योग सही है, आवरण पृष्ठ पर अंकों की प्रविष्टि सही है, उत्तर पुस्तिका के आवरण पृष्ठ पर पंक्तियों व स्तंभों में योग सही है तथा समन्वयक (डीई) द्वारा सही अंक अपलोड किए गए हैं।

I certify that I have checked this answer book and found that it does not have any unevaluated part, totalling inside is correct, posting of marks on the cover page is correct, totaling on cover page in row and column of the answer book is correct and the correct marks have been uploaded by the coordinator (DE).

अतिरिक्त मुख्य परीक्षक (समन्वयक)
Signature of AHE (Coordination) _____ संख्या No. _____

मैं प्रमाणित करता/करती हूँ कि मैंने इस उत्तर-पुस्तिका की जाँच की, जिसकी (प्रासंगिक स्तंभ (✓) द्वारा जाँच की गयी है और पाया गया है कि इसका निर्देशों के अनुसार मूल्यांकन किया गया है और सही अंक अपलोड किए गए हैं।

I certify that I have checked this answer book which has been checked by [put (✓) in relevant column] and found it to have been evaluated as per instructions and correct marks have been uploaded.

- ☐ परीक्षक Examiner
- ☐ समन्वयक Coordinator
- ☐ समन्वयक (डीई) Coordinator (DE)
- ☐ अतिरिक्त मुख्य परीक्षक (मूल्यांकन)AHE (Evaluation)
- ☐ अतिरिक्त मुख्य परीक्षक (समन्वयक)AHE (Coordinator)
- ☐ मुख्य परीक्षक HE

मुख्य नोडल पर्यवेक्षक के हस्ताक्षर Signature of HE _____ संख्या No. _____

Section - A - Biology

1. C ✓
2. B ✓
3. B ✓
4. D ✓
5. C ✓
6. B ✓
7. B ✓
8. b ✓
9. d ✓

9/

10. i) Herbivorous (such as cow) consumes majorly grass which has cellulose. So to digest the cellulose properly they have ~~large~~ longer small intestine, and that of cellulose is harder to digest. ✓ ✓

ii) Carnivorous ~~consumes~~ such as Tiger consume meat which are relatively easy to digest, so, carnivorous have relatively smaller small intestine. ✓

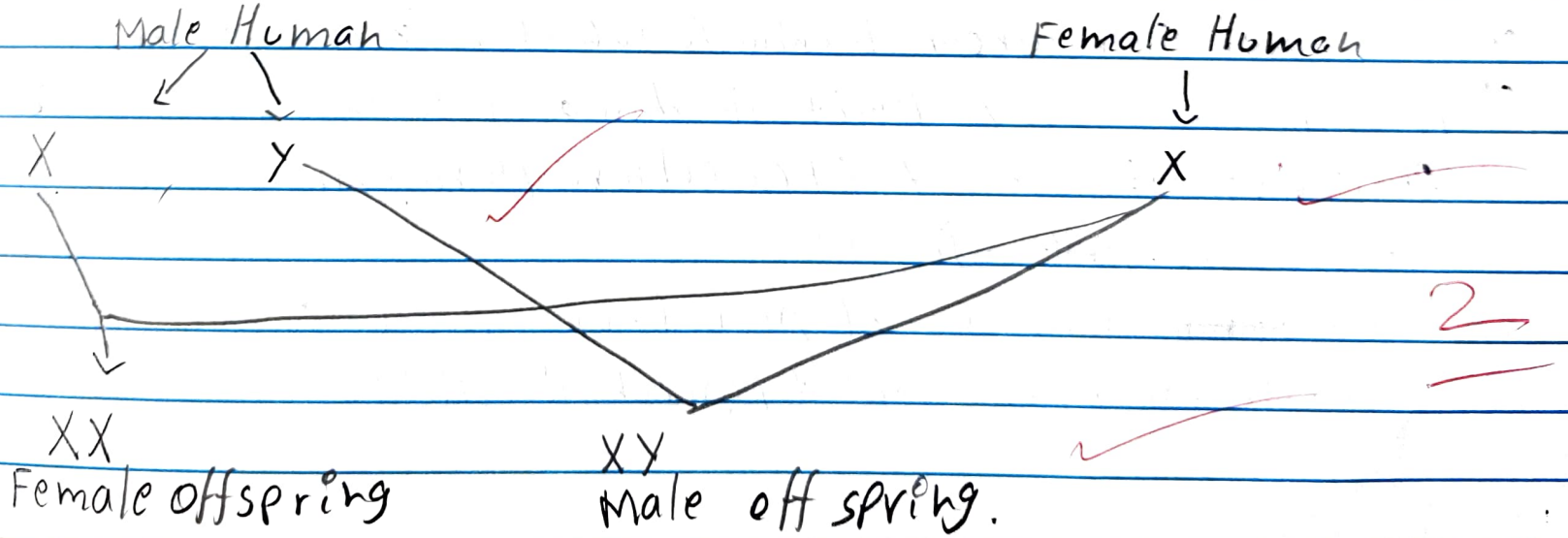
2

11. B) i) As body size increases many cells are not in direct contact with air, which makes only the outer body cells to do diffusion. thats why diffusion is insufficant for supplying ~~ee~~ oxygen to cells of the body.

2

ii) Thats why ~~big~~ big body animals needs a specialised systems or parts to meet their requirement.

12. i) In humans the sex of a child is determined ~~by the~~ father and not by mother.



2

ii) If sperm cell containing X chrosomes fertilise with the egg it makes a Girl child

iii) If sperm cell containing Y chrosomes fertilise with egg it makes a ~~Male~~ Male child

3

13. i) In the upper layers of Earth atmosphere has O_3 (ozone) layer which protects the earth from ultraviolet radiation.

ii) If ~~there~~ the O_3 (ozone) ~~replanish~~ decreases that UV rays will come on earth and will cause many harm to ecosystem, such as it will cause skin cancer to animals which is very dangerous.

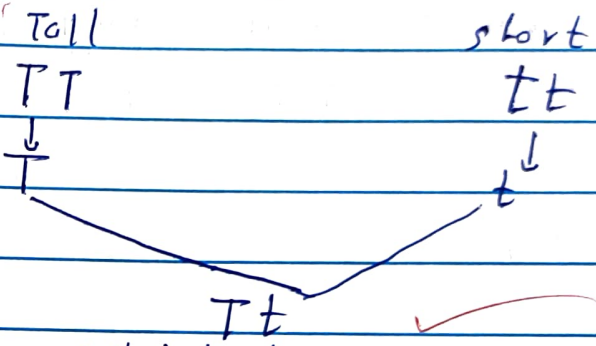
iii) Steps to be taken to limit the damagen to this shield. are -

a) Abolishing the use of CFCs (Chloro floro carbons) which are used in ~~refrigents~~. refrigients.

b) Less emission of green house gases such as CO_2 etc which reacts with ozone and deplanish the shield.

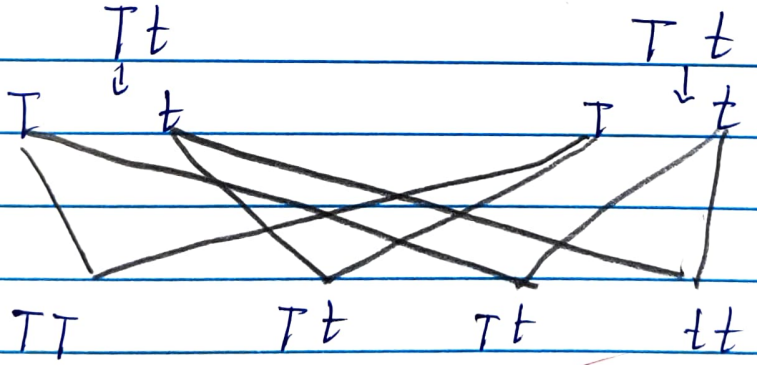
14. i) yes, the recessive trait appear offspring if it is not seen in the parents.

ii) If we take two pea plants, one plant tall (TT) and another plant short (tt). In F_1 generation -



All tall plant as T is dominant trait. and t is recessive trait.

iii) If we cross F_1 generations plants again:



Genotypic ratio - 1:2:1

Phenotypic ratio = 3:1

2 1/2

In this generation we will see a pea plant to be small in length. Hence we can conclude that if a recessive trait can express itself in the F_2 generation

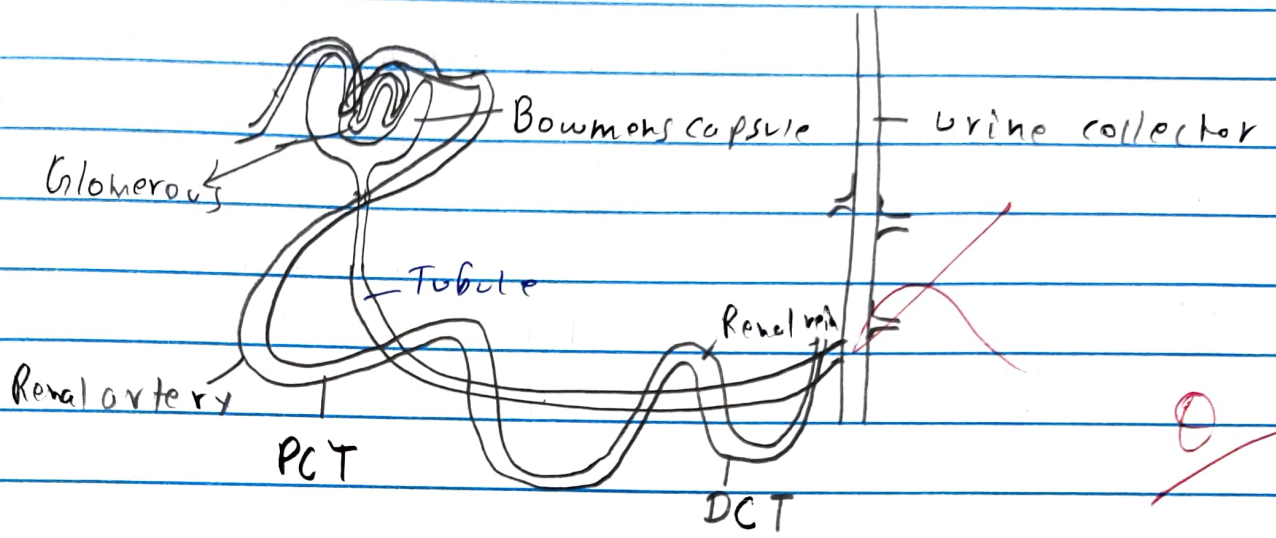
15. B) our urinary bladder is like a bag which becomes enlarged when excess urine enters into it and can control that excess urine for a time period. As our nervous system is connected with urinary bladder we are able to control the urge to urinate for ~~so~~ a time period.

C) Bowmens capsule

D) i) If we consome excess water than the ~~wate~~ urine formation quantity will be hegher. and ~~absorbtion~~ reabsorbtion rate will be less.

ii) If we didnt consume excess water than the urine formation quantity will be lower. and reabsorbtion rate of water will be high.

16.B)



i) When the blood comes in the Glomerous (a thin walled capillaries network), ~~it~~ ~~get~~ the unwanted nitrogenous waste and some usful substance (Glucose) gets ~~also~~ deposited in the Bowmens capsule.

ii) When it travels along the tubule some usful substances (Glucose etc) are reabsorbed and the remaining urine is ~~collec~~ collected in the urine collector and goes to urinary bladder and then it gets extreated.

Section-B (Chemistry)

17. A ✓ 1
18. B ✓ 1
19. D ✗
20 C ✓ 1
21 C ✗
22 C ✓ 1
23 B) i, iii, ii only. ✓ 1
24. A ✓ 1

25 i) The doctor is using gypsum ($CaSO_4 \cdot \frac{1}{2} H_2O$). 2

ii) $CaSO_4 \cdot \frac{1}{2} H_2O + 1\frac{1}{2} H_2O \longrightarrow CaSO_4 \cdot 2H_2O$

iii) When this calcium sulphate dihydrate is applied with surgical bandage on the fractured bones of a patient for supporting them in right position. The calcium sulphate dihydrate loses its $1\frac{1}{2} H_2O$ and becomes very hard after some time which helps in curing bone fractures.

26. a) M is Mg (Magnesium) 3
N is MgO (Magnesium oxide)

b) $2Mg + O_2 \longrightarrow 2MgO + Heat$

c) M or Mg is getting oxidised as there is addition of oxygen.

28. i) E can be used as a preservative. 1

ii) ~~E can be used as~~ B can be used as antacid as it is mild base 1

iii) C is the substance which is a strong Acid.
because it is releasing highest ~~amount~~ of H^+ ions that can be seen through its pH. 2

27. Carbon - 2, 4 - electronic configuration
In Carbon the valence shell has 4 e^-. Carbon if takes ~~or gives~~ 4 e^- so, that it can complete its octet than very high amount of energy is needed. So, the carbon shares 4 e^- and forms a covalent bond. 2
Hence carbon ~~if let~~ shows tetravalency.

29. A) As we know that HNO_3 (Nitric Acid) is a strong oxidising agent. Al ~~Et~~ when dipped in HNO_3 will form a oxide layer. which will decrease its reactivity.

B) Na and Mg are very high reactive metal. so, Carbon is unable to reduce the oxides of Na or Mg. Na and Mg are refined through electrolytic reduction.

C) NaCl is solid state does not posses ions to conduct electricity. But in Aqueous state and molten state NaCl becomes Na^+ and Cl^- which helps in conduction of electricity.

D) Iron ~~ar~~ticles when kept in open ~~E~~air forms rust ($Fe_2O_3 \cdot xH_2O$) ~~which~~ which is brownish in colour. To prevent it from rusting a layer of Zn is added on the surface of Iron Articles which is known as Glavanisation.

E) Metals like Na, K, Ca and Mg never found in their free state because they are very reactive metal and reacts with their surroundings, thats why they are not found in free state in nature.

Section-C - Physics

3

30 (A)

31 (A)

32 (A)

33. Given that 2 bulbs of 50 watt each are used for t = 6 hours daily and an electric geyser of 1KW is used for 1 hour daily. (a)

To find - Total energy consumed.

Energy consumed by the 2 bulbs of 50 watt operated for 6 hours. 1½

P = 50 watt

t = 6 hours

Energy consumed = P x t

=> 50 x 6

= 300 watt hour

2 bulbs will consume - 2 x 300 => 600 watt hour or $\frac{6}{10}$ KWh

Energy consumed by electric geyser -> P = 1KW

t = 1 hour

=> Pxt => 1 x 1 = 1KWh.

In Each day total Energy consumed is = 6+1 = 7 KWh

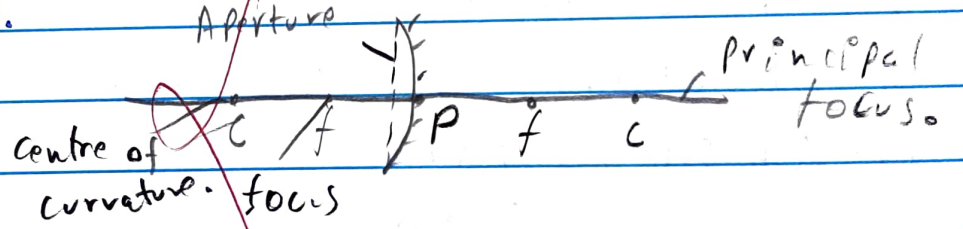
For 30 days energy consumed by the house is = 7 x 30

= 350 Kwh

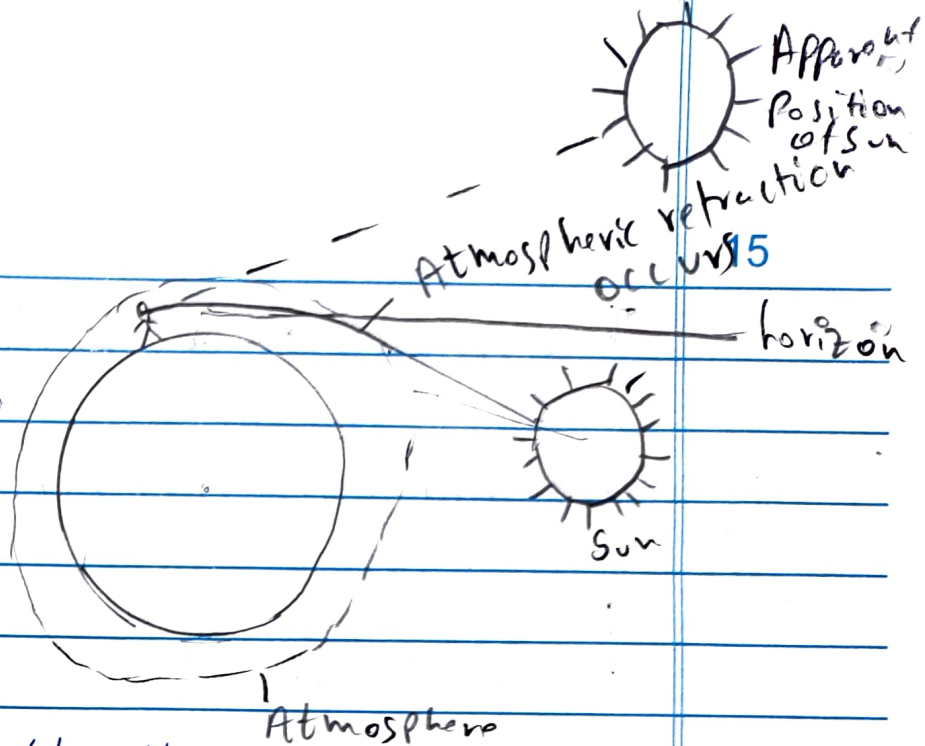
Total 350 units of elec energy is consumed by the house.

34. i) Aperture - It is the distance between extreme points of a spherical mirror. It determines the size of the mirror.

ii) Principal focus - It is a line which connectes pole and centre of curvature.



35. when the so rays (light) coming from the sun enters the earth atmosphere it starts bending towards the normal, and when the refracted rays are seen by us we see the sun above the horizon.
That's why we see the sum two minutes before the actual sunrise and set two minutes after the actual sunset.



3

36. A. $1\Omega = \frac{1 volt}{1 ampere}$

when ~~in a conductor~~ in a conductor has potential difference of 1V is there and only 1Ampere of current is flowing through the conductor then 1Ω resistance is offered by the conductor.

B) $I = 5A$

$V = 220v$

Finding R. Using ohm's law $V = IR \Rightarrow 220 = 5 \times R \Rightarrow \frac{220}{5} = R \Rightarrow \boxed{R = 44\Omega}$

$V = IR$

$R = \frac{V}{I}$

44
5 | 220
20
20
0

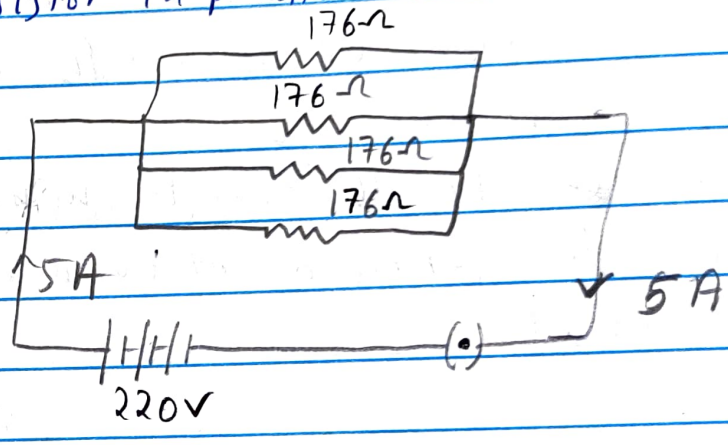
The resistance offered by the circuit is 44 Ω.

(3) When connecting four 176 Ω resistor in parallel we will get 44 Ω resistance.

$$\frac{1}{R_p} = \frac{1}{176} + \frac{1}{176} + \frac{1}{176} + \frac{1}{176}$$

$$\Rightarrow \frac{4}{176}$$

$$\boxed{R_p = 44\ \Omega}$$



Hence four 176 Ω resistor ~~is~~ connected in parallel ~~with~~ will carry 5A on a 220V lines.

(3)

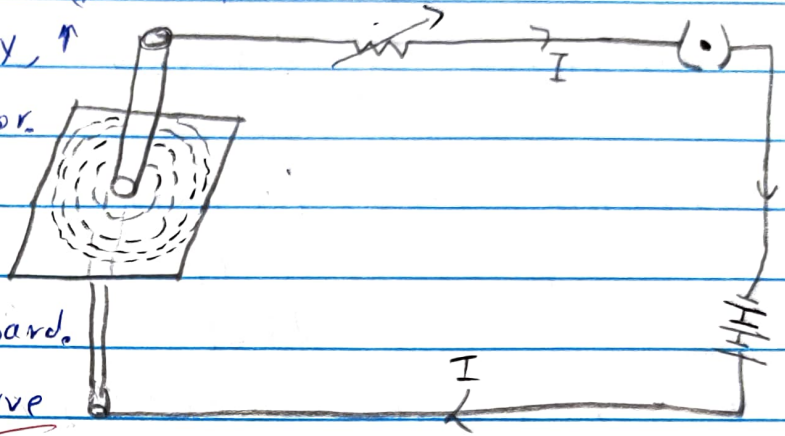
37. i) Take a rheostat, plug key, battery, ammeter, a cardboard and a straigh conductor.

ii) Connect them in as shown in the diagram and plug the key

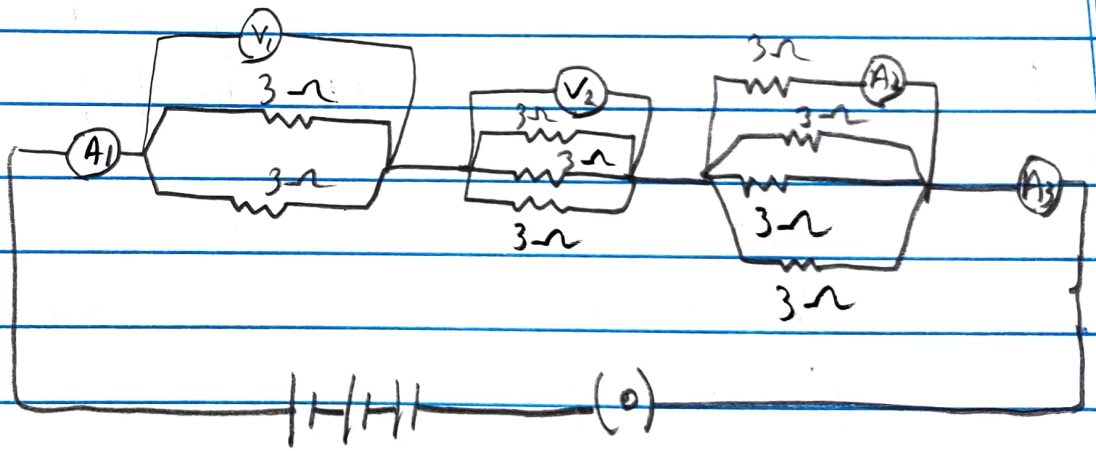
iii) sprinkle Iron Powder on the cardboard.

iv) Shake the cardboard and you will observe a circular rings that are concentric and the centre is in the straight conductor.

v) Hence we can conclude that a straight current carrying conductor creates a magnetic field.



38. A) A_1 and A_3 readings are 1A. Same as they are in series also in a circuit a constant current is flown



B) Resistance total in the above circuit $\frac{1}{R_p} = \frac{1}{3} + \frac{1}{3} = \frac{2}{3} \Rightarrow \left[R_p = \frac{3}{2}\Omega \text{ or } 1.5\Omega\right]$

$\frac{1}{R_p} = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} \cdot \frac{3!}{3,} = \left[R_p = 1\Omega\right]$

In the third branch $\frac{1}{R_p} = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} \Rightarrow \frac{4}{3}$ $R_p = \frac{3}{4}\Omega$

Total resistance $= 1.5 + 1 + 0.75$

$= 2.5 + 0.75$

$= 3.25\Omega$

~~$V = IR$~~ The readings in the A_2 and A_3 are not equal.

Adding the current passing through the all four 3Ω resistors, ~~in last one~~ then we will get A_3 value.

C) Finding the V_1 value, $I = 1A$, $\frac{1}{R} = \frac{1}{3} + \frac{1}{3} = \frac{2}{3} \Rightarrow R = 1.5\Omega$

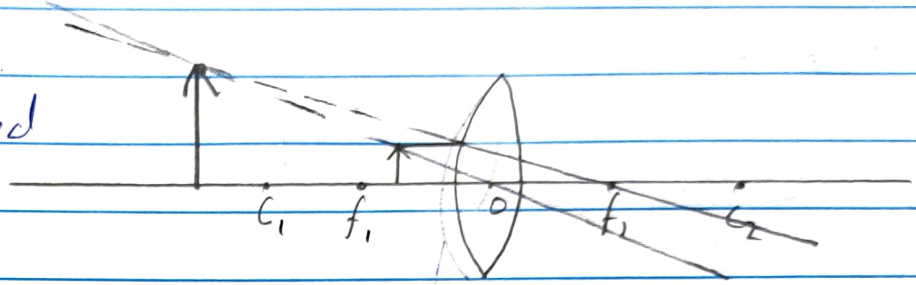
$V_1 = IR$

$V_1 = 1 \times 1.5$

$V_1 = 1.5\,V$

V_1 value is $1.5\,V$.

39. i) The object should be placed in between the ~~focus~~ focus and optical centre. He will obtain enlarged virtual erect image.



Magnifying glass case ray diagram.

ii) Given that $h_o = 3cm$, $P = 4D$, $V = 40cm$

$P = \frac{1}{f}$

$f = \frac{1}{4P}$

$[f = 0.25\,cm]$

∴ As focal length is in +ve the spherical lens is convex lens.

∴

Lens formula → $\frac{1}{f} = \frac{1}{V} - \frac{1}{U}$

$\frac{1 \times 100}{0.25} = \frac{1}{40} - \frac{1}{U}$

$$\frac{1}{v} = \frac{1}{40} - \frac{4}{1}$$

$$\frac{1}{v} = \frac{1-160}{40}$$

$$\frac{1}{v} = \frac{-159}{40}$$

$$\left[v = \frac{-40}{159}\ cm\right] \simeq -0.25\ cm$$

The image is on the left side and is $\frac{40}{159}$ cm away from the optical centre

Magnification $= \frac{V}{U} \Rightarrow \frac{\frac{40}{159}}{\frac{-40}{159}} \Rightarrow \frac{40 \times 159}{159 \times -40} \Rightarrow \frac{4000}{-6360} \Rightarrow \frac{40}{-159}$

$\Rightarrow \frac{40}{-40} \Rightarrow \frac{40 \times 159}{-40} \Rightarrow -159$

∴ The image formed is virtual and inverted

$M = \frac{h_i}{h_o} \Rightarrow -159 = \frac{3}{h_i} \Rightarrow h_i = \frac{3}{-159}$

$\left[h_i = \frac{-1}{53}\ cm\right]$

The image is formed below the principal axis at a height $\frac{1}{53}$ cm