

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

विषय Subject : **Science**

विषय कोड Subject Code : **086**

परीक्षा का दिन एवं तिथि
Day & Date of the Examination : **13/03/19 ; Wednesday**

उत्तर देने का माध्यम
Medium of answering the paper : **English**

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

Code Number	Set Number
031/1/1	● ② ③ ④

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

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विकलांग व्यक्ति : **हाँ / नहीं**
Person with Disabilities : **Yes / No**

No

किसी शारीरिक अक्षमता से प्रभावित हो तो संबंधित वर्ग में ✓ का निशान लगाएँ।
If physically challenged, tick the category

B	D	H	S	C	A
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B = दृष्टिहीन, D = श्रवण अक्षमता, H = शारीरिक रूप से विकलांग, S = स्पास्टिक
C = डिस्लेक्सिक, A = ऑटिस्टिक
B = Visually Impaired, D = Hearing Impaired, H = Physically Challenged
S = Spastic, C = Dyslexic, A = Autistic

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

No

यदि दृष्टिहीन हैं तो उपयोग में लाए गये
सॉफ्टवेयर का नाम :
If Visually challenged, name of software used :

—

*एक खाने में एक अक्षर लिखें। नाम के प्रत्येक भाग के बीच एक खाना रिक्त छोड़ दें। यदि परीक्षार्थी का नाम 24 अक्षरों से अधिक है, तो केवल नाम के प्रथम 24 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 24 letters, write first 24 letters.

कार्यालय उपयोग के लिए
Space for office use

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086 / 14231



Instructions to Candidates

1. Make sure that the answer-book contains 32 pages and are properly serialied in number (including title pages) as soon as you receive it.
2. DO NOT make any special sign or mark in or outside the answer-book, supplementary answer-book, graph-paper, map etc.
3. DO NOT write your roll no., name of your school or place of examination in any of your answers.
4. You must write the supplementary answer-book serial no. in the attendance sheet.
5. Write on each ruled line on both sides and do not waste pages by leaving a wider margin.
6. DO NOT tear out or fold the pages of the answer-book and do not leave any page blank unnecessarily. No supplementary answer-book(s) should be asked for unless this answer-book / the previous supplementary answer-book is finished.
7. Number your answers according to their numbers in the question paper.
8. Draw a line when a question (or a part thereof) is finished.
9. Securely tag your answer-book with supplementary answer-book(s), graph-paper, map etc. if used by you, but DO NOT write your Roll No. on the supplementary answer-book, graph-paper, map etc.
10. Use only blue-black or royal-blue ink/gel/ball point pen. Using of any other writing instrument/ink/pencil etc will be on your own risk and responsibility.
11. For rough calculation etc., appropriate margin on the right-hand side of the page may be drawn. The rough calculations etc. should be crossed out afterwards.
12. DO NOT leave the examination hall without handing over the answer-book to the Asstt. Supdt.
13. If during the course of examination, a candidate is found indulging in any of the following, he/she shall be deemed to have used unfair means at the examinations, and as such his/her result shall not be declared but shall be marked as UNFAIR MEANS (U.F.M.) :-
 - (a) having in possession papers, books, notes or any other material or information relevant to the examination in the paper concerned;
 - (b) giving or receiving assistance directly or indirectly of any kind or attempting to do so;
 - (c) writing questions or answers on any material other than the answer book given by the Centre Superintendent for writing answers;
 - (d) tearing of any page of the answer-book or supplementary answer-book etc.
 - (e) contacting or communicating or trying to do so with any person, other than the Examination Staff, during the examination time in the examination centre;
 - (f) taking away the answer-book out of the examination hall/room;
 - (g) using or attempting to use any other undesirable method or means in connection with the examination;
 - (h) smuggling out Question Paper or its part or smuggling out answer-book/ supplementary answer-sheet or part thereof; and
 - (i) threatening any of the officials connected with the conduct of the examinations or threatening of any of the candidates.



केन्द्रीय माध्यमिक शिक्षा बोर्ड, दिल्ली
Central Board of Secondary Education, Delhi

SECONDARY SCHOOL EXAMINATION (CLASS X)

सेकण्डरी स्कूल परीक्षा (कक्षा दसवीं)

Q. No.	01	02	03	04	05	06	07	08	09	10	TOTAL
MARKS	1	1	2	2	2	3	3	3	3	3	23

Q. No.	11	12	13	14	15	16	17	18	19	20	TOTAL
MARKS	3	3	3	3	3	5	5	5	5	5	40

Q. No.	21	22	23	24	25	26	27	28	29	30	TOTAL
MARKS	5	2	2	2	2	2	2				17

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

	GRAND TOTAL	80
MARKS IN WORDS	Eighty	

CBSE

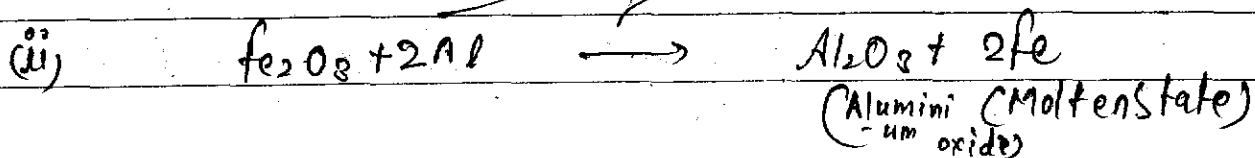
प्रमाणित किया जाता है कि मैंने इस उत्तर पुस्तिका का मल्यांकन उचित प्रश्नपत्र के सेट और अंकन योजना के अनुसार किया है। यह भी प्रमाणित किया जाता है कि उत्तर पुस्तिका के अन्दर कोई

1905

Answer 16

(a)	Metal	Non-metal
	<ul style="list-style-type: none"> Oxides of metal are basic in Nature 	<ul style="list-style-type: none"> oxides of Non-metals are acidic in Nature
	$\text{Na}_2\text{O} + \text{H}_2\text{O} \rightarrow 2\text{NaOH}$	$\text{S} + \text{O}_2 \rightarrow \text{SO}_2$
	<ul style="list-style-type: none"> Metals react with water to form their corresponding oxides and Hydrogen 	<ul style="list-style-type: none"> Generally the Non-metals doesn't react with water.
	<ul style="list-style-type: none"> Metals reacts with acid & form metal salt and Hydrogen gas. 	<ul style="list-style-type: none"> But in the case of Non-metal they didn't react with acid

(b) (i) Because Metals have very low resistivity, & they have very free electrons due to which they are good conductor of electricity. Metals consist of ions. These ions are responsible for the flow of charge.



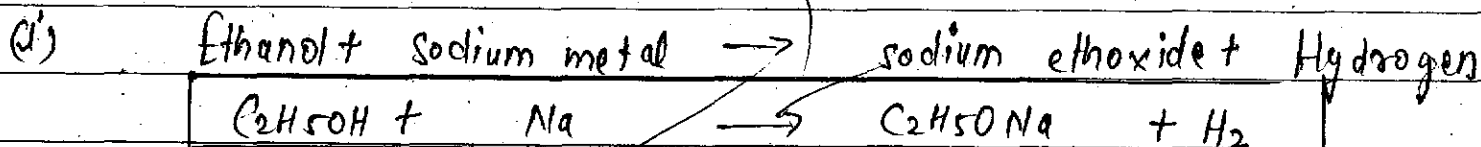
when Iron oxide is heated with Aluminium then iron oxide get reduced to iron. This reaction is highly exothermic in nature due to which reduced iron is obtained in molten state. This molten iron is used for welding purpose. This is the reason that this reaction is used to join cracked machine parts. This reaction is called Thermite reaction.

Answer 17

Name of the compound: - Ethanol $[C_2H_5OH]$.

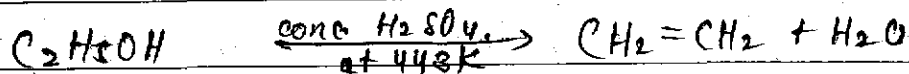
Uses: 1. ethanol is used for making several kinds of medicines like cough syrup, antiseptic lotions & creams etc.

2. Ethanol is also used for making beer, wine, whiskey, vodka, Rum etc.



product: sodium ethoxide & hydrogen gas.

cii)



This is dehydration reaction.

product: ethene, water in the form of vapour.

Answer 18

Pollination - The transfer of pollen grains from anther of the stamen to the stigma of the carpel by the action of air, water, insects etc. is called pollination.

There are two types of pollination.

Self-pollination

cross-pollination.

[I] Self-pollination - The transfer of pollen grain from anther of the stamen to the stigma of the carpel in the same flower is called self-pollination.

[II] Cross-pollination - The transfer of pollen grain from Anther of the stamen to the stigma of the carpel of another flower of the same species is called cross-pollination.

→ Insects, air are two agents of pollination.

After pollination, pollen grain need to be transfer to the female germ cells which are in the ovary of pistil for this purpose a tube grows out of the pollen grains which travels to the style to reach the ovary. when pollen grains reach the ovary. the fusion of male & female sex cells evolved which gives us the zygote. Hence in that way a suitable pollination leads to fertilization.

(5)

Answers.

(i)

$$u = -60 \text{ cm}$$

$$f = -30 \text{ cm} \quad [\text{concave lens}]$$

$$v = ?$$

Using lens formula,

$$\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\frac{1}{-30} = \frac{1}{v} - \frac{1}{-60}$$

$$\frac{1}{-30} = \frac{1}{v} + \frac{1}{60}$$

$$-\frac{1}{30} - \frac{1}{60} = \frac{1}{v}$$

$$\frac{-1 \times 2 - 1 \times 1}{60} = \frac{1}{v}$$

$$-\frac{3}{60} = \frac{1}{v}$$

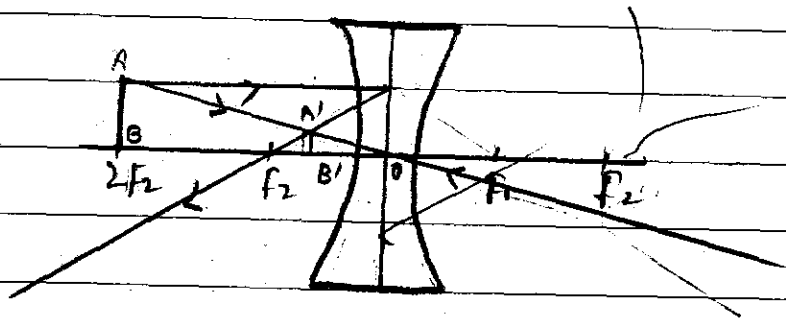
$$\boxed{v = -20 \text{ cm}} = \text{distance of image from lens. Ans.}$$

(ii)

Nature = Virtual & erect.

Position = towards left side of lens at a distance of 20 cm . or b/w 0 & f_2
 Size = Diminished
 Inverted = Non-Inverted

(iii)



Answer 20

(a) $R_1 = 20\Omega$, $R_2 = 4\Omega$

$V = 6V$

Total resistance

$R = R_1 + R_2$

$R = 20 + 4$

$R = 24\Omega$

(b) Using Ohm's Law

$$V = IR$$

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

$$I = \frac{6}{24} = 0.25$$

$$I = 0.25 \text{ A} \text{ — electric current.}$$

(c) (i) electric lamp P.D

$$V_1 = IR_1$$

$$V_1 = \frac{25}{100} \times 200 = 5$$

$$V_1 = 5 \text{ VOLT}$$

(ii) P.D across conductor

$$V_2 = IR_2$$

$$V_2 = \frac{25}{100} \times 4 = 1$$

$$V_2 = 1 \text{ VOLT}$$

(d) Power = Voltage \times electric current.

$$P = VI$$

$$P = 6 \times \frac{2\text{K}}{1000}$$

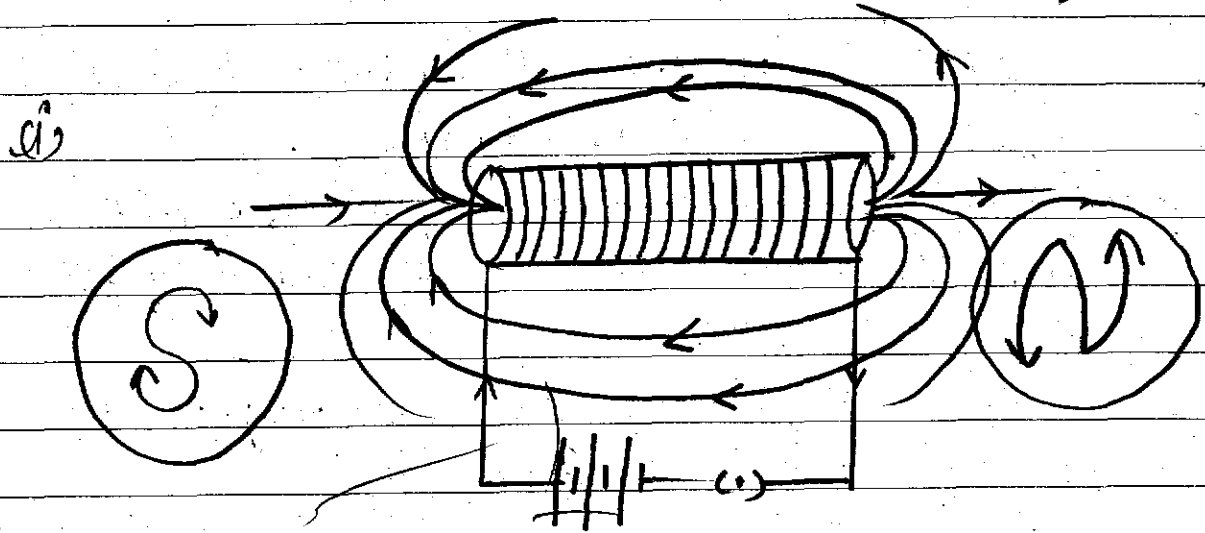
$$P = \frac{2}{4} \times 3$$

$$P = 1.5 \text{ Watt}$$

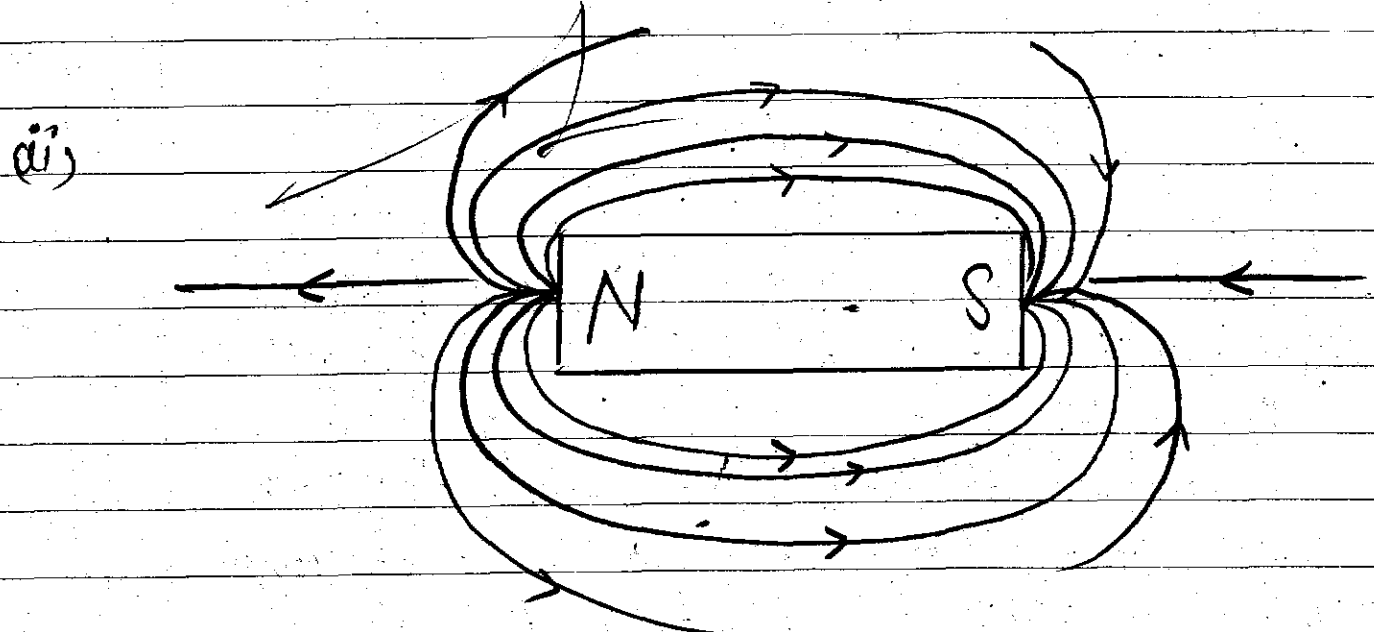
Answer 21

Solenoid: A solenoid is electro magnet is made by winding so many close turns of insulating copper wire over the non-conducting magnetic cylindrical material in the form of Helix. it behaves like a magnet when current is passed through it. otherwise it will be demagnetize.

QUESTION



Magnetic field produced by current-carrying conductor



Magnetic field produced by Bar magnet.

QUESTION

Differences.

Magnetic field produces by solenoid	magnetic field produces by hard Bar-magnet
<ul style="list-style-type: none">• solenoid produces a uniform magnetic field. magnetic field produces by it is same at all point• poles of solenoid can be interchange• It produces strong magnetic field	<ul style="list-style-type: none">• But magnetic field produces by Bar-magnet is not same at all points• But poles of bar magnet can't be interchange.• It produces weak magnetic field

Answer 12

3

Acquired traits	Inherited traits
<ul style="list-style-type: none">• Those traits which are develop in an organism due to special conditions.• These traits can't be transmitted nor inherited	<ul style="list-style-type: none">• Those traits which are passed from one generation to Next.• These traits can be transmitted as well as inherited.

acquired trait	Inherited trait
e.g. Boring of pinna, gaining weight or losing weight etc.	e.g. eye colour, human height, skin colour etc

Answer 14

Three methods of waste disposal

Composting: wastes of human & animal excreta can be compost ecosystem:

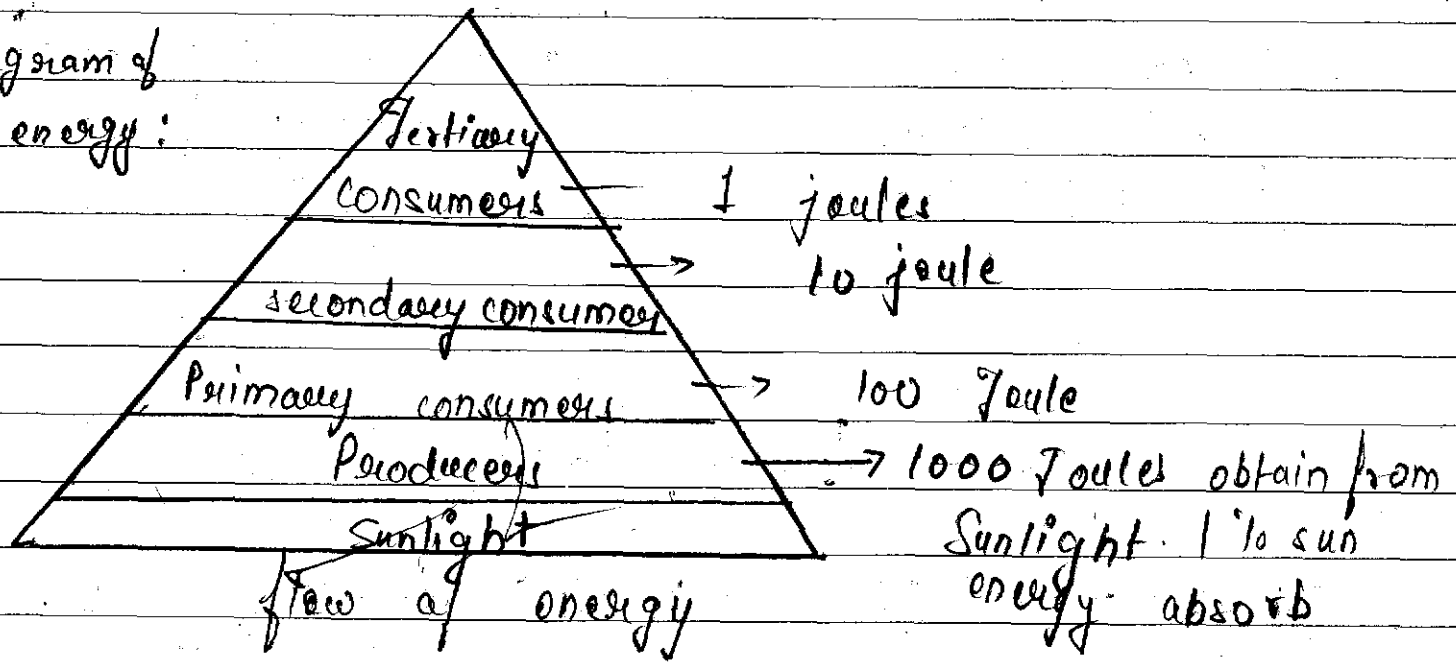
→ All the living organisms in an area together with the non-living constituents interact with each other and maintain a balance in Nature. This forms an ecosystem.

Hence an ecosystem consist of both biotic like plants & animals and abiotic like air, water, land etc components.

Ecosystem = Biotic component + Abiotic components

QUESTION

block diagram of flow of energy:



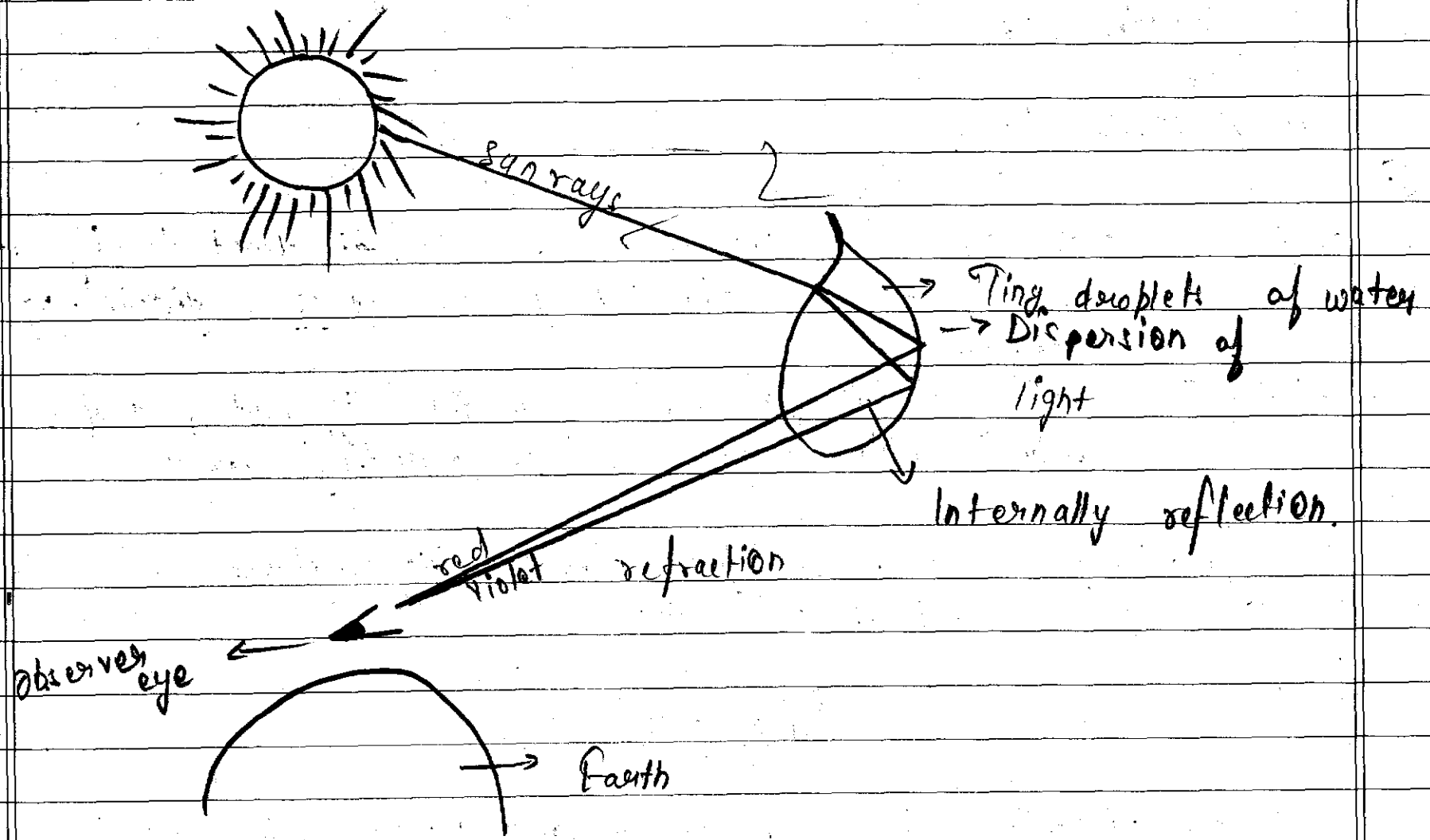
Answers

Q

Rainbow is a natural phenomenon which consists of seven colours and is always formed during the rain or after the rain when sunshine. A rainbow is always formed in opposite direction of sun. Rainbow is formed by three main phenomenon, Dispersion of sun light into

CAUSE OF RAINBOW

ting - droplets of water which act as a small prism & then internally reflected and reaches to the observer on the earth by refraction.



Answer 9

Three types of Blood vessels are following:

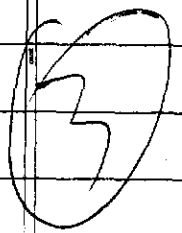
- 1. Arteries
- 2. Veins
- 3. Capillaries.



→ Arteries - Arteries carry the blood from the Heart to different part of the body act as a distributing vessel.

→ Veins - Veins carry the blood from the different part of the body to the Heart act as collecting vessels.

→ capillaries - These are fine thread like structures which join arteries to veins.



Answer 15

→ Water Harvesting is a practised of collecting rain water for

→ using it different purposes like irrigation, drinking purposes. It's methods of collecting rainwater is different in different part of India.

Two main advantages associated with water harvesting at the community level :-

- Rain water makes ensures of supply of drinking water to towns & cities.
- These collecting rain water is used for irrigation purposes.

→ Two causes

- Due to increasing population large No. of Industries & factories are set up, which used uses more groundwater for their working.
- Many farmers & other peoples use chemical pesticides these pesticides washed down into the soil & pollute groundwater & disturb their purity.

3

Answer 11

QUESTION

→ Plants Hormones are those chemicals which are responsible for the growth & development of plant & also for control & coordination, because plants do not have Nervous system like Human beings

- (i) Auxin
- (ii) Cytokinin
- (iii) Abscisic acid
- (iv) Gibberellins

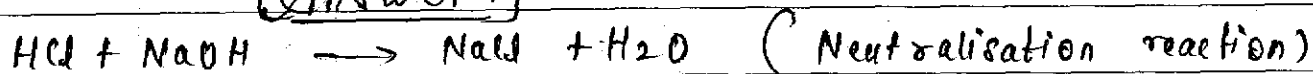
Answer 10

When a bright light is focused on our eyes then the iris makes the size of pupil smaller, so that less amount of bright light may enter into the eye. Where these bright light is detected by cells of cones present on the retina, cones are sensitive to bright light. These are sent to Brain via optic Nerve and brain interprets it.

bright light → iris makes the size of pupil smaller → eye lens → retina →

cones detect if present on retina \rightarrow optic nerve \rightarrow Brain.

Answer 7



Acid \rightarrow Dilute Hydrochloric acid, HCl

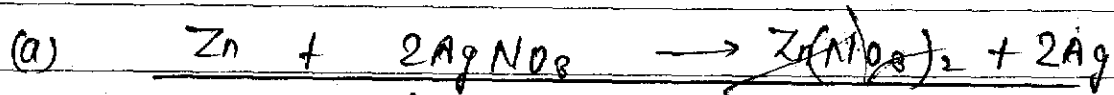
Base \rightarrow Sodium Hydroxide, NaOH

\rightarrow It is a Neutral salt.

\rightarrow When it is extracted from the rock salt which are found deep below the mines then it is called a rock salt.

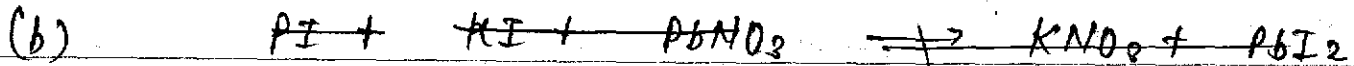
\rightarrow Rock salt is formed by natural process and it is formed deep into the earth under its favourable conditions. It was just mines like coal. It was formed under high pressure and high temperature.

Answer 6



It is a displacement reaction.

(B)



It is a double displacement reaction.

Answer 3

(D)

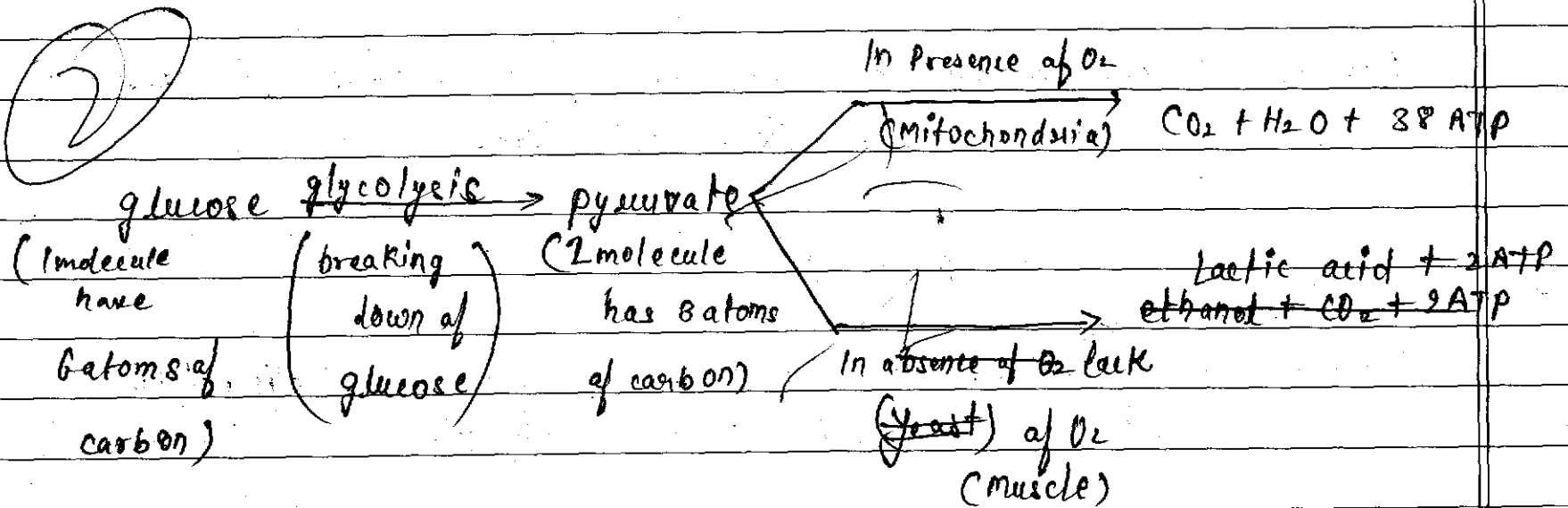
group - 14th group.

period - 3rd period.

(b) Name: Silicon, it is a Non-metal

physical property - It is a metalloid.

Answer 4:



glucose is oxidized to provide energy in two ways:

- (i) sufficient supply of oxygen (Mitochondria)
product: carbon dioxide, water vapour, 38 ATP energy is produced.
- (ii) lack of oxygen (Muscle)
product: lactic acid, 2 ATP energy is produced.

22

QUESTION

ANSWER

ANSWER 2

1. Biogas is considered as excellent fuel because it consists of 75% of methane, which is a good fuel.

ANSWER 1

1. Galvanometer function: It detects the current or direction of current in the circuit.

ANSWER 5

2. Power of accommodation: It is the ability of our eye lens so that we can see the nearby objects or distant objects by changing its focal length with the help of ciliary muscle.

→ Modification of curvature of eye lens to see the nearby object clearly
 is if excessive curvature of eye lens takes place then
 the focal length of the eye lens decreases which enables us to
 see the nearby objects.

reason:

Answer 8

(i) In first group of α elements all elements have only one
 valency because they have only one valence electron in
 their outermost shell

molecular formula: $X_1 X^{+1} O^{-2}$ $\left[\begin{array}{l} X = \text{any element of group} \\ \text{first} \end{array} \right]$

group No.
 - No of
 valence
 electron

reason:

X_2O

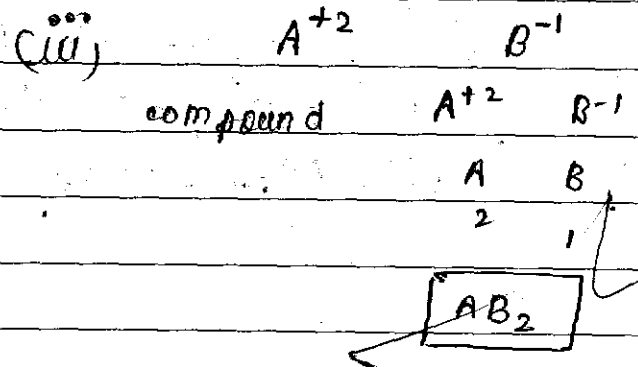
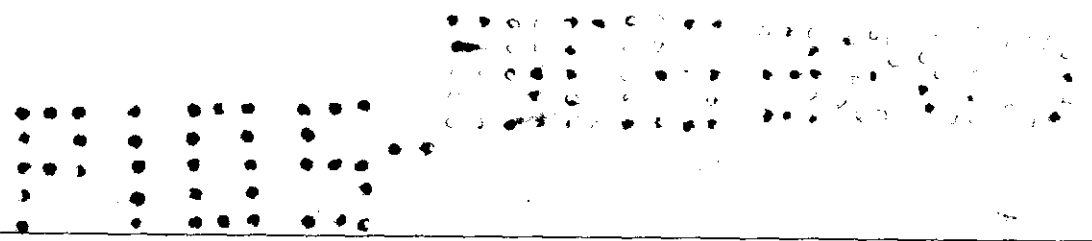
(ii) In group No. Thirteen element have 3 valence val. electron
 in H 's outermost shell, ~~bec~~ so, it loses 3 electron to
 complete it's octet.

$X^{+3} H$

XH_3

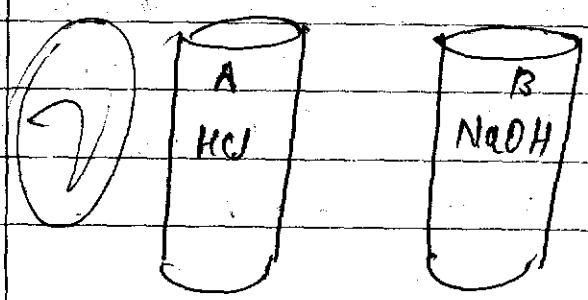
$\left[\begin{array}{l} X = \text{any element of group no 13} \\ \text{and H is Halide} \end{array} \right]$

3



reason: In group 2 element A have 2 valence electron in their outermost during a chemical reaction element A loses 2 electrons to form A^{+2} cation. On the other hand element B is in the group seventeen so it have 7 valence electron. In its outermost shell of B loses gain 1 electron to complete its octet.

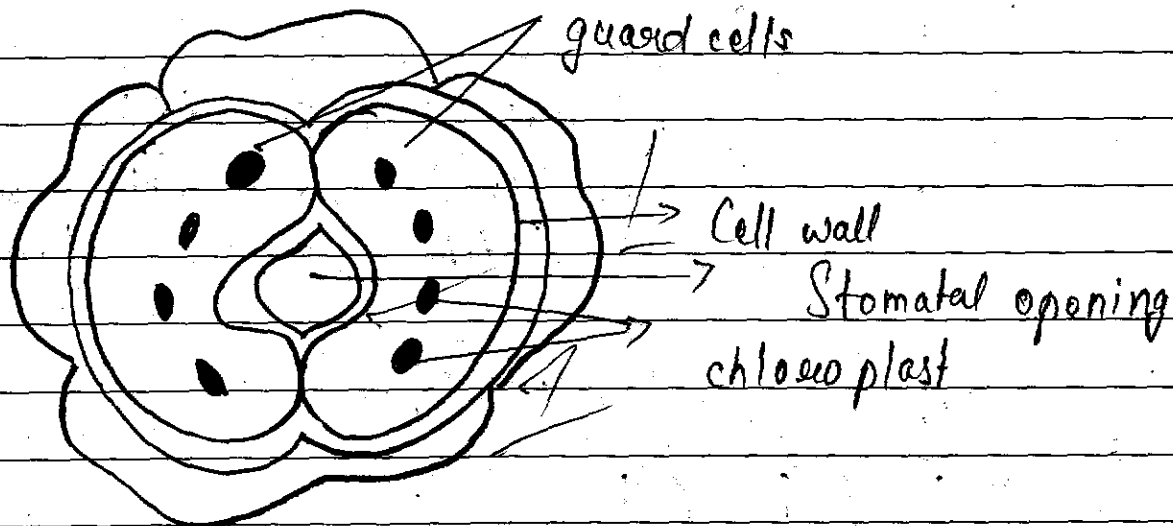
Answer 22



reason: In Test tube A colour change will be observed because it's Test tube A contain HCl which is an acid & we know that blue litmus turns red when it added to any acid.

Colour change is Blue litmus turns red. because acid turns blue litmus to red.

Answer 24



Stomata

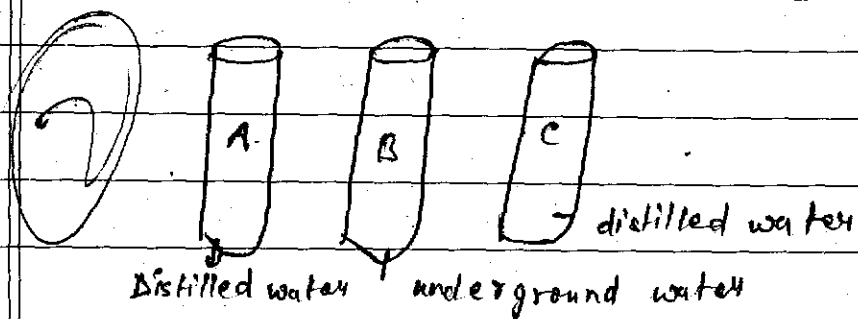
Answer 27.

→ substance taken in the small test tube - Potassium hydroxide [KOH]

→ function: It absorbs the CO_2 produce by germinating seed in the conical flask and creates a partial vacuum in the conical flask

→ consequence: consequence of it's use is that potassium hydroxide absorbs CO_2 and creates vacuum due to which pressure inside the flask reduces and water moves from the higher pressure to low pressure. due to which water rises up in the glass tube placed in beaker.

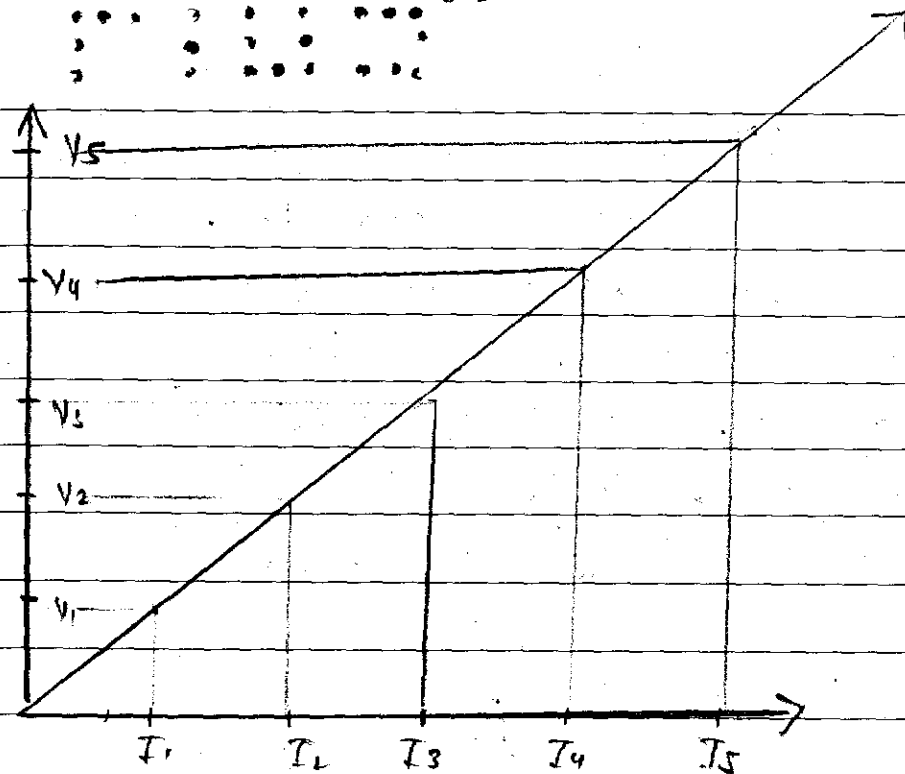
Answer 28.



CaSO_4 is dissolved in ~~three~~ test tubes. equal amount of soap solution is added to each test tube. then in Test tube A the length of the foam be longest because Test tube A contains distilled water which is pure soft water it doesn't contain any type of salt. Test tube B contain ground water which may be have some salt & in Test tube C CaSO_4 is present which makes the distilled Hard & soap cannot work well with Hardwater.

Answer 26

2



The straight line passes through the origin signify that potential difference across a conductor is directly proportional to the amount of electric current passing through the circuit.

Method: If current increases with same rate and potential difference also increase with same rate, then resistance of the resistor is determined:

$$R = \frac{V}{I} \quad \boxed{R = \frac{V_2 - V_1}{I_2 - I_1}}$$

Solution 27

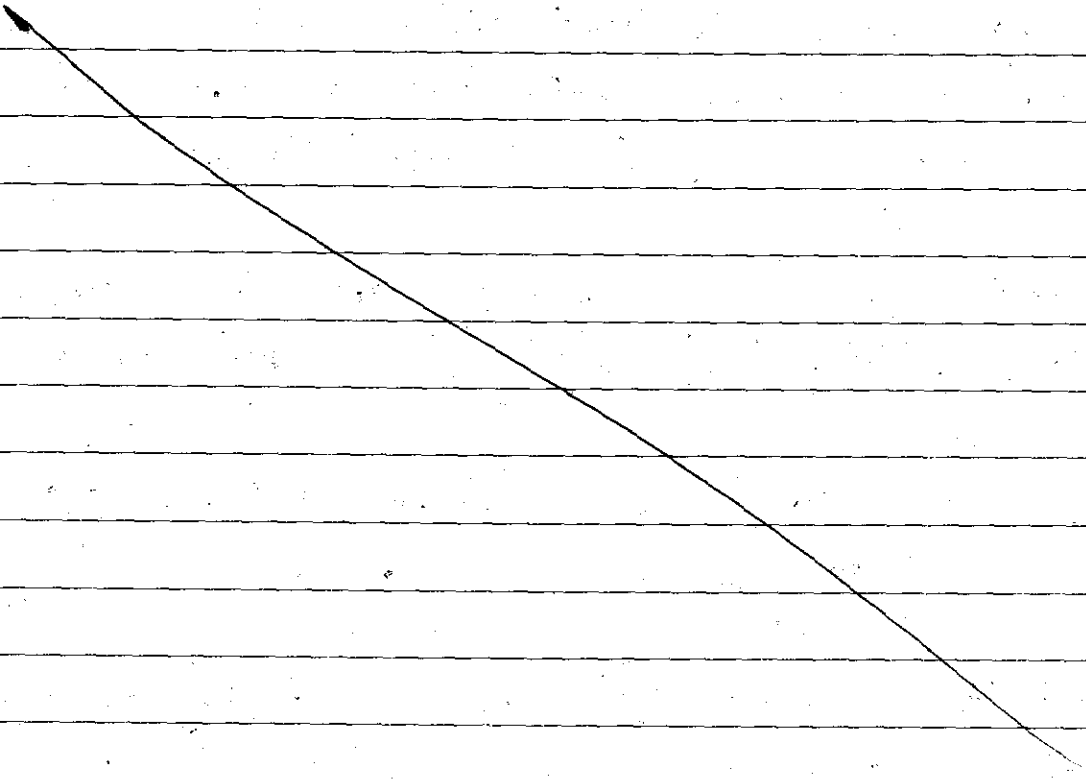
2

Following are the four precaution determining focal length of a convex lens by obtaining image of a distant object on a screen.

- [I] Student always uses best convex lens and metre to measure the distance between screen & distant object.
- [II] The student should have knowledge about convex lens. For e.g. convex lens have positive focal length & it's converging in nature etc.
- [III] Student should always use pointed pencil. & the screen should also be cleaned.
- [IV] Student can directly placed the object at infinity mean very far then the light coming from object converge at focus and we can measure the focal length.
- [V] Convex mirror is converging in nature that's why it makes the screen warmer so handle it carefully.

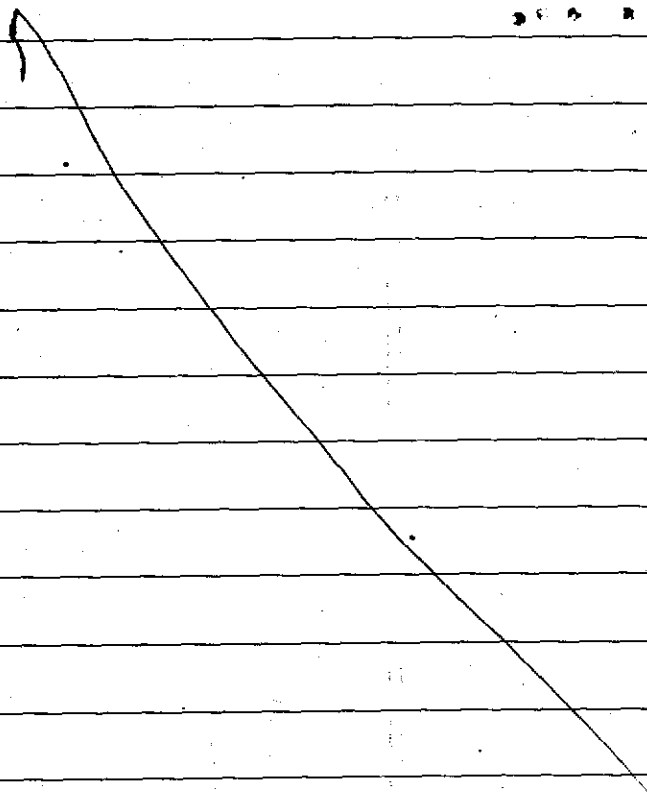
PHASE

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