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Science — Sample paper

1 C It turns milky due to passing of carbon dioxide through it. It turns colourless as on further passing carbon dioxide, sodium hydrogen carbonate is formed which is soluble in water. Calcium H carb. formed

2 a. thermal decomposition of lead nitrate which produces brown fumes of nitrogen oxide.

3. C. 4, 2, 1

4. b. Milk of magnesia Blue 10 Basic

5. b. Al and Al_2O_3

6 C. $Na_2CO_3 \cdot 10H_2O$

16/20

7 C. A is a saturated cyclic hydrocarbons and B & C are unsaturated cyclic hydrocarbons

8 d. a fungi, Rhizopus

9 d. The villi of the small intestine absorb water from the unabsorbed food before it gets removed from the body.

10 (A) In individuals of a given species, a specific gene is located on a particular chromosome.

Search and explore this point on google!!

growth related movement

11 (a) It is due to stimulus of touch and temperature

12 (d) Rose ✓ Coral

13 (d) 16 ✓

14 (a) higher ✓ power making such as geyser.

15 we'll discuss about least count!!
It is total value divided by no. of divisions!!

16 (b) in the ~~vertically~~ upward direction.

we'll discuss it!!

17 (a) Both (a) and (R) are true and (R) is the correct explanation of (A) ✓

18 (c) (a) is true ✓ but (R) is false.

19 (c) (a) is true ✓ but (R) is false ✓

20 (a) Both (a) and (R) are true and (R) is the correct explanation of (a) ✓

~~Section B~~

~~21 (a) (b)~~

~~₹100 + ₹100 + ₹50 = ₹250~~

Section B

21 (b)

(i) $CuSO_4 . 5H_2O \xrightarrow{\Delta} CuSO_4 + 5H_2O$

(ii) $2NaHCO_3 \xrightarrow{Heat} Na_2O + H_2O + 2CO_2$

22 (a) Insulin is the hormone which is secreted by the Pancreas. The role of insulin is to breakdown sugar in our body.

Diseases caused by insulin.

Hyposecretion → Sugar Millets diabetes

Hypersecretion → Sugar Millets.

(b) The more releasing in insulin causes the blood sugar level low and less releasing in insulin causes the blood sugar level high.

23

(a) (i) Venacava → deoxygenated blood

(ii) Pulmonary artery → oxygenated blood.

path missing

24 Kidney is part of the human excretory system where nephrons are found.

The function of nephron is to filter our blood and make the and remove the waste from the blood.

Remove nitrogenous waste from blood to form urine!! + Reabsorbtion of useful materials from filterate!!

Structure of nephron contains

- Ca Bowman's Capsule
- Tubular part
- Conducting duct.

Explain the structure__Like--->cluster of thin-walled capillaries (glomerulus) associated with cup-shaped end of a tube called Bowman's capsule. This further extends into a tubular part which ends in collective ducts.

or at least define the parts u written!!

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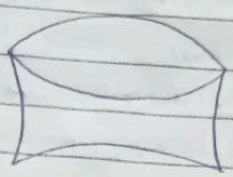
25 Avoid copying this much text from question

(b)(i) It is observed that the power of an eye to see nearby objects as well as far off objects diminished with age because the focus of the lens of their eyes changes gradually.

Why focus change??
due to weakening of ciliary muscles of eyes with age!!

(ii) Presbiopia is a defect that is likely to occur in the eyes in such a condition.

(iii)



concave + convex

Likhna bi hota hai kuch??

26 In a food chain, at each trophic level, the harmful chemicals get accumulated progressively as they eat each other as we go at the top of the tropic level, they are eaten with harmfull chemicals. and hence higher trophic level consist of more harmful chemicals.

chemical,,soil-->plants-->animals...not degradable...so get accumulated!!

Section C

Maja ni aaya

27 (a) (i) NH_3
(ii) H_2O
(iii) CO
(iv) H_2

3

18/21

(b) Redox reaction is defined as the gaining of oxygen and that is oxidation. When

More better-->gain and loss of oxygen and simultaneously called redox rkn.

oxydation take's place the Reduction also takes place. means when there is gaining of oxygen then there must be losing of oxygen also.

28 (a) (i) When production of too much acid in stomach during ingestion takes place then to ~~to~~ by using the mild base like milk of magnesia causes relief by neutralizing the effect of excess acid in the stomach.

or antacid

(ii) By rubbing metals such as iron ~~gi~~ give relief when stung by honey bee / nettle leaves ~~take~~ place.

aisa bi tha kya??iron vala??

mild base, dock plant, Baking soda , methanoic acid!!

2

(b) When milk is changes into curd it's PH will decrease because curd is sour in taste and it consist of lactic acid that decrease the PH of the milk as turning into curd.

curd more acidic than milk can be included!!

29

(b) (i) The internal energy reserves in Plants :- Starch
Animals :- Glycogen

3

Prepare intermediate compound at night which is acted upon by enrgy absorbed by chlorophyll during the day!!!

(ii) Desert planes perform photosynthesis if their stomata remain closed during the day then they perform process in night ~~time~~ because in day the temperature is very high that the water in the plant evaporate medirably if stomata get open. so ~~no~~ no water can be lose they perform their process at night.

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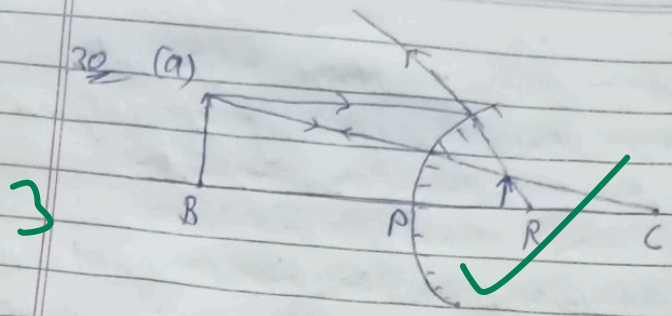
3 (a)



3

(b) The nature of the image is virtual and ~~Erect~~
Position ± between Pole and focus behind mirror
Size ± Small

(c) The sign of the image distance is positive in this case using the Cartesian sign convention.

3)

(a) Danger signals ~~installed at airports and at the top of tall buildings~~ are of red colour because red colour is less deviated and hence can be seen as far as ~~away~~.

(b) Sky appears dark to the passengers flying at very high altitudes because at the high altitude there ~~is~~ no atmosphere so that the any light can't be able to scatter itself.

2

(c) The path of beam of light passing through a ~~colloidal~~ solution is visible because the particals of colloidal solution can able to scatter the light.

why scatter ?

Because size of colloidal particles is big enough to scatter beam of light!!

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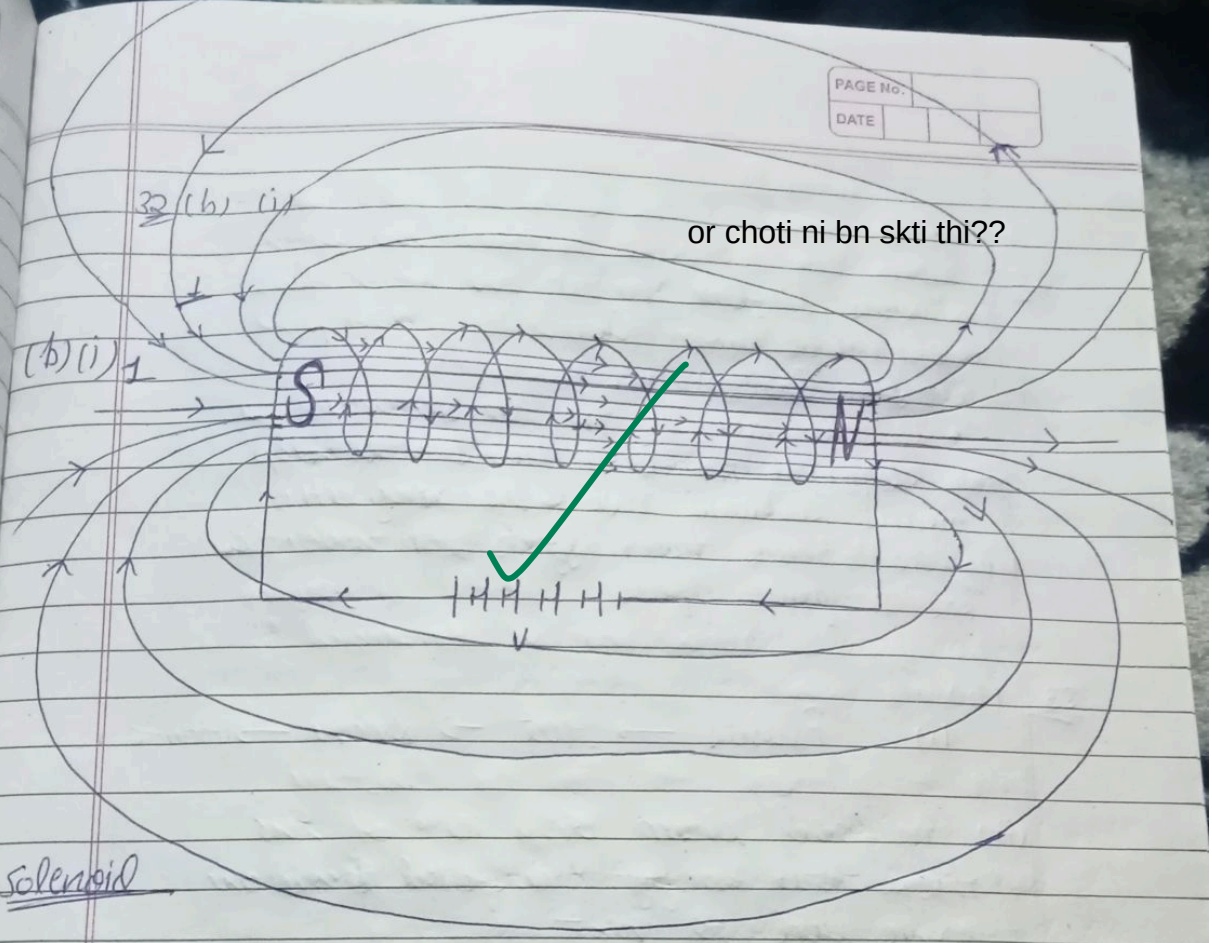
32 (b) (i)

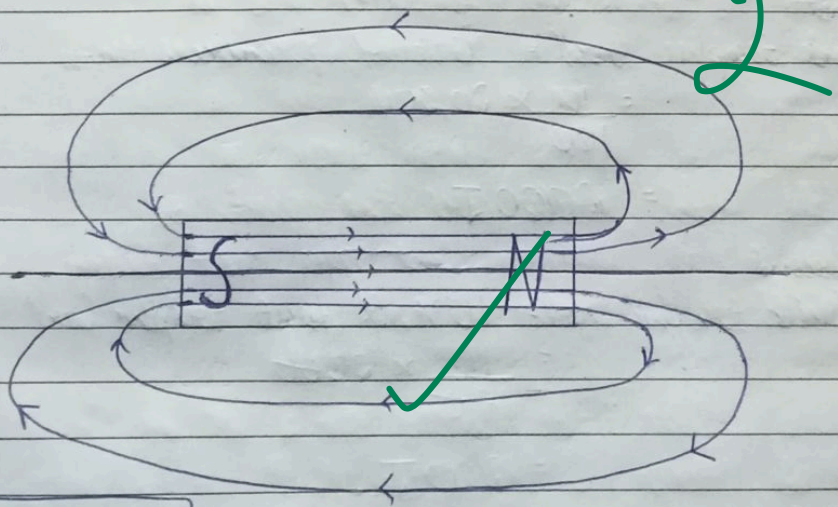
or choti ni bn skti thi??

(b)(i) 1



Solenoid

(ii) 2



Bar- magnet

Ye koi diff hua????....kuch khas ni!!

(iii) The field of the solenoid depends upon the current through the solenoid whereas in bar magnet the field always travell from North to south pole outside the magnet.

• If the current in the solenoid is stop the magnetic fields also stop means solenoid lose its magnetic effect whereas bar magnet never lose its magnetic effect.

Yani solenoid-->Temporory MF
bar magnet--> Permanent MF

33 (b)

(i) Plants → Rat → Snake → Hawk

(ii) In food chain only 10% of the total energy transfered from one trophic level to next

Energy at first trophic level = 10% of producers enery

$= \frac{10}{100} \times 20,000$

$= 2000\ J$

Energy at second trophic level = 10% of first trophic level

$= \frac{10}{100} \times 2000$

$= 200\ J$

Energy at third trophic level $= \frac{10}{100} \times 200$

$= 20\ J$

Energy at fourth trophic level = $\frac{10}{100} \times 20$

= 2J

The energy that that is transferred by organism of the third trophic level to the the organism of the fourth trophic level is 18J.

(iii) Energy transferred from producer to second trophic level is 20000 J.

Second to third trophic level energy is transferred:

$\frac{10}{100} \times 20000$

= 2000 J

third to fourth trophic level energy is transferred:

$\frac{10}{100} \times 2000$ = 200 J

200J of energy is transferred from third trophic level to the fourth trophic level.

2

12.5/15

Section D

34

(i) A → C_2H_5OH Ethanol
B → C_2H_4 Ethene
C → C_2H_6 Ethane

Write compounds with their name and (STRUCTURE)

(ii) $C_2H_5OH \xrightarrow[443K]{Conc.\ H_2SO_4} C_2H_4 + H_2O$

(iii) $C_2H_6 + O_2 \longrightarrow 2CO_2 + 3H_2O$ + Heat

Water and carbon dioxide is formed when the combustion of compound C takes place and a lot of heat produced!!

(iv) It is used to dry the substance

(v) $C_2H_5OH + Na \longrightarrow C_2H_5ONa + H_2$

Sodium ethoxide and Hydrogen gas is formed when compound A react with Na.

4.5

35 (a) Sepals and petals are the parts of a bisexual flower that are not directly involved in reproduction.

(b) Pollination is a process of transferring of pollen grains from anther to stigma.

3.5

Self pollination occurs in same flower of same plant or different flowers of same plant whereas cross pollination occurs in different type of flower or same type of flower of different plants by insects etc.

Significance of pollination

1. Necessary for seed formation.
2. Stimulates development of fruits.
3. Cross pollination brings about genetic variation
4. Leads to fertilization

- Pollen grain and ovule help to fertilise because of the process pollination.
- Pollination Because of the pollination bisexual reproduction takes place and new organism can be produce.

c part missing

36 $H = I^2RT$

$H = P.T$

$H' = 880 \cdot T$ ---(i)

When power is at maximum rate

$P = I^2R$

$880 = I^2R$

$880 = I(V)$

$880 = I \cdot 220$

$I = \frac{880}{220}$

$I = 4$

$V = IR$

$220 = 4 \cdot R$

$R = 55\ \Omega$

$H' = 330 \cdot T$ ---(ii)

When heating is at minimum rate

$330 = I(V)$

$I = \frac{330}{220}$

$I = \frac{3}{2}\ A$

$I = 1.5\ A$

Thoda likhna bhi chaiye ki kr kya rhe ho!!

$V = IR$

$220 = IR$

$220 = \frac{3}{2}R$

$R = \frac{220 \times 2}{3} = \frac{440}{3} = 146.6$

$R = 146.6\ \Omega$

When heating is at maximum rate, current = 4A Resistance = 55Ω

When heating is at minimum current = 3.5A Resistance = 146.6 Ω

When electric current is passed through a resistor, electrical energy is dissipated and appears as heat energy and this energy is

(b) heating effect of electric current is directly proportional to the square of current, resistance of the conductor and the time. ½

(c) $H = I^2RT$

Thoda elaborate krke like here H is heat, I is current flowing n all!!

Section E

(a) When copper is heated in air then the copper II oxide is formed.

$2Cu + O_2 \rightarrow 2CuO$ CuO formed

(b) Some metal oxides categorized as amphoteric because they show both basic as well as acidic behaviour

React with both acids and bases to form salt n water

$Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$

Metal oxide Base Sodium aluminate

$Al_2O_3 + 6HCl \rightarrow 2AlCl_3 + 3H_2O$

Metal oxide Acid Aluminium chloride

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2

(c) (i) No reaction ✗

KU bhyiiii??
Blki ye to vigrous rkn hogi to form NaOH

(ii) $Al_2O_3 + 2NaOH \rightarrow 2NaAlO_2 + H_2O$ ✓

38 (a) • Hight of peap plant dwarf or ~~tall~~ tall

2.5

• Color of flower
White or Purple!!

(b) • dominant trait ~~is the trait~~ that express itself on other recessive trait.

In f_1 generation when mandel crossed the ~~pea plant~~ dwarf height. Tall trait is ~~dominant~~ as all the plants were tall.

Dominant Trait – are expressed even if one copy of dominant trait exists.
Recessive Trait – Whose expression is suppressed by a dominant gene/ Expressed when two copies of recessive traits are present

-1

• ~~Recessive traits are the trait which~~ shows itself after one or two generation.

as in f_1 generation when mandel crossed the pea plant on character of hight. dwarf trait is recessive as no dwarf plant is found.

Shi tha ye bi.....interpretation= traits are independently inherited!!

(c) 9:3:3:1 is the ratio of the ~~combination~~ observed in the seeds of f_2 generation.

	V	V
V	Vv	Vv
V	Vv	Vv

100%

In f_1 generation ^ Pure violet flowered plant are obtained.

	V	v
V	VV	Vv
v	Vv	vv

✓

In f_2 generation 75% pure violet flowered plant are obtained and 25% Pure white flowered plant obtained

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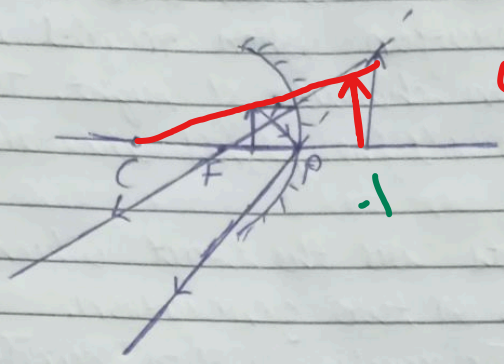
32 (a) · Search torch
· headlights of vehicles

3

(b) $f = 15cm$
$R = 2f$
$R = 30cm$
The distance between the centre of curvature and the pole is 30cm

(c)



center of object at pass hogi

The image is formed behind the mirror.
Large image is formed.

62/80

Better luck next time!!