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NAME: C SRIMATHI
SUBJECT: SCIENCE
EXAM: PRE-BOARD-02

1) In moving from left to right in a period, the tendency of atoms to lose electron decreases

2) It is a series of organic compounds which have same functional group and similar chemical properties

3) AIDS

4) The magnification is 1 because the size of image is equal to size of object

5) It is because red is least scattered by fog or smoke. Therefore it can be seen in the same colour even from a distant place.

6) 1 diaptre is the power of a lens of focal length 1 meter.

7) From the graph, slope of wire A is greater. Hence, wire A has greater resistance.

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For the wire of same length and same thickness, resistance depends on the nature of material of the wire ie,

$$R_1 = \rho_1 \frac{l}{A}$$

$$R_2 = \rho_2 \frac{l}{A}$$

$$\frac{R_1}{R_2} = \frac{\rho_1}{\rho_2}$$

$$R \propto \rho$$

Hence wire 'A' is having the material of high resistivity

8) When a magnetic needle is brought near a current carrying conductor, it deflects because a magnetic force is exerted by a magnetic field.

9) Zero, because current flows due to potential difference only.

10) In the absence of stamens, self-pollination is not possible but cross-pollination occurs leading to fertilisation and formation of fruit.

11) Translocation is the transport of soluble products of photosynthesis in the whole plant.

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12) When high energy ultraviolet radiation acts on oxygen, the production of ozone gas takes place

$$O_2 \rightarrow O + O$$
$$O_2 + O \rightarrow O_3$$

13) Excretion is the biological process involved in the removal of harmful metabolic wastes from the body.

14) Assertion: Diamond is a conductor of electricity and heat.
Reason: Diamond is soluble in all known solvents
d) A is false but R is true.

15) c) A is true but R is false

16) c) A is true but R is false

17) 17.1) c) Rings of cartilage

17.2) d) Nostrils → Pharynx → Larynx → trachea → alveoli.

17.3) b) alveoli of lungs

17.4) d) II and IV

17.5) b) carbon-di-oxide

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18) 18.1) c) litmus and methyl orange

18.2) d) vanilla essence

18.3) a) phenol phthalein

18.4) b) Lichen

18.5) d) II and IV

19) 19.1) b) M_2

19.2) b) $R = 2f$

19.3) a) $\left(\frac{-\text{Image distance}}{\text{object distance}}\right)$

19.4) d) -30cm

19.5) c) virtual and erect

20) 20.1) b) D

20.2) c) A

20.3) a) $R_A > R_B > R_C > R_D$

20.4) d) less than that of A

20.5) c) more than that of D.

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21) i) Functions of stomata:
a) Gaseous exchange takes plaad
b) Serves as site of photosynthesis
ii) The guard cell swell when water flows into them causing the stomatal pore to open. Similarly, the pore closes if the guard cell shrunk.

22) i) Movement of oxygenated blood in the body is as follows:
Pulmonary Veins -> Left atrium -> Left ventricle -> Systemic aorta -> All parts of the body.
ii) Artery has thick elastic wall whereas vein is thin walled as blood is under less pressure in veins.

23) If hydrogen gas is passed over heated copper oxide, the black coating on the surface turns brown as the reaction takes place and copper is obtained

$$CuO + H_2 \xrightarrow{\Delta} Cu + H_2O$$
(Black) (Brown)

24) i) $CaO + H_2O \rightarrow Ca(OH)_2$
ii) Since the reaction is highly exothermic, the solution started boiling although it was not being heated.

25) The curved dish should be concave in nature and the antenna should be positioned at the focus of the curved dish to receive the strongest possible signals

26) The repetition of similar properties of elements after a regular interval is called periodicity of properties of elements
The properties of elements placed in same group are similar but in same number of valence electrons

27) On the basis of the experiment, the scientists can arrive at a law (i.e, law of dominance. The conclusion of this law are given as follows
i) Both the parents should contribute a copy of the same gene
ii) For each trait, a plant is having two copies, one from each parents
iii) If the copies of the traits are not same, the dominant trait shall get expressed.
iv) When F1 generation is self-crossed, the recessive trait of F1 generation in the F2 generation is in ratio of 3:1

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28) i) Role of decomposers in the environment is decomposers. By the process of decomposition, they return the nutrients to the nutrient pool.

ii) The energy flow through different steps in the food chain is unidirectional. It moves progressively from producers to consumers in single direction only.

29) The breakdown of glucose takes place in the cell cytoplasm into a three-carbon molecule called pyruvate which is further broken down and provide energy as shown below:

Glucose (6-carbon molecule) —(In cytoplasm)→ Pyruvate (3 carbon molecule) + Energy

- No oxygen (in yeast) → Ethanol + Carbondioxide (2C molecule) + Energy
- Lack of oxygen (in our muscle cells) → Lactic acid + Energy (3C molecule)
- Presence of oxygen (in mitochondria) → Carbondioxide + water + Energy

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30) i) a) The green colour of ferrous sulphate changes to brown due to the formation of ferric oxide
b) A smell of burning sulphur is obtained due to the formation of sulphur dioxide gas

ii) $2FeSO_4 \rightarrow Fe_2O_3 + SO_3 + SO_2$

31) i) The halogens are placed in group 17. So 'b' represents a halogen
ii) 'c' is noble gas
iii) a and b are non metals. So, a covalent bond is formed

33) i) $f_1 = 25cm = 0.25m$

$P_1 = \frac{1}{f(m)} = \frac{1}{0.25} = 4D$

$f_2 = -0.10m$

$P_2 = \frac{1}{-0.1} = -10D$

$P = P_1 + P_2 = 4 - 10 = -6D$

ii) $f = \frac{1}{P} = \frac{1}{-6} = -1/6\ m$ (or) $-16.66\ cm$

iii) The combination of is diverging in nature.

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34) i) We know that metals have 1 to 3 electrons in their outermost shells. E is not a metal, though it contains 1 electron.

ii) a) Q as it has displaced both P and R from their compound.

b) R as it has been displaced by both P and Q

c) Displacement reaction

35) i)

	organism	Mode of Reproduction
A	Bryophyllum	Vegetative propagation
B	Plasmodium	Multiple fission

ii) They are covered with a hard protective wall which enables them to survive in unfavourable conditions and can only germinate and produce new plant under favourable conditions.

iii) Two asexual methods are budding and regeneration. This bud develops, gets matured and detaches from the parent cell to become a new individual.

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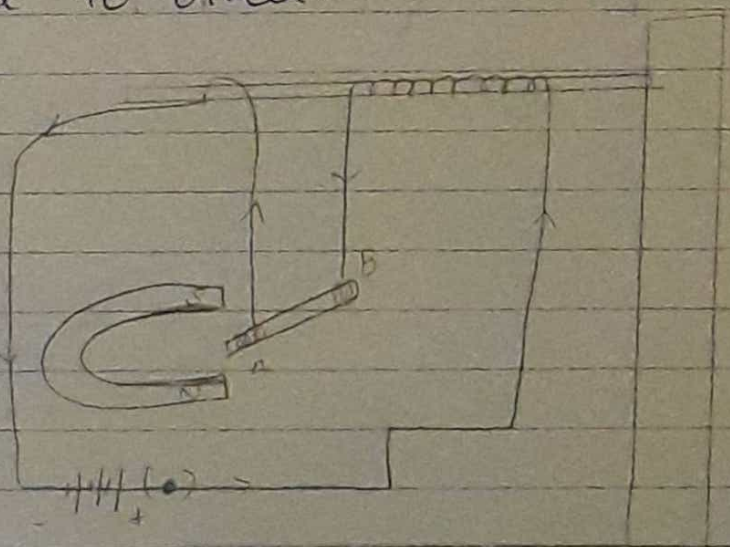
36 i) A small aluminium rod is suspended horizontally from a stand using 2 connecting wires. Place a strong horseshoe magnet in such a way that the rod lie between the two poles with the magnetic field directed upwards. For this, the North pole of the magnet vertically below and south pole vertically above the aluminium rod. Connect the aluminium rod in series with a battery, a key and a rheostat. Pass a current through the aluminium rod from one end to other.



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ii) Fleming's left hand rule:
Stretch the Thumb, forefinger and Middle finger of your left hand such that they are mutually perpendicular to one another

iii) According to Fleming's left hand rule, the direction of force is perpendicular to the direction of magnetic field and current. We know that the condition current is taken opposite to the direction of motion of electrons Therefore, the force is directed upwards from the plane of the paper