

COMMON PRE-BOARD EXAMINATION 2017-2018
SCIENCE ANSWERKEY

CLASS: X

Maximum Marks: 80

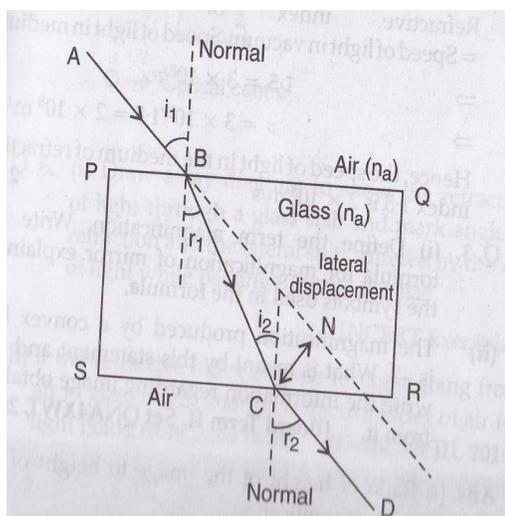
SECTION A

- | | | |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 1 | Saliva is the first digestive juice produced by the salivary glands.
Saliva contains amylase or ptyalin for digesting starch into sugar. | ½
½ |
| 2 | Sporangium | 1 |
| 3 | a) Process in which oxygen is gained or hydrogen is lost is called oxidation.
Process in which hydrogen is gained or oxygen is lost is called reduction. A reaction in which both oxidation and reduction happens simultaneously is called redox reaction.
b) Substance oxidized: HCl
Substance reduced: MnO ₂ | 1

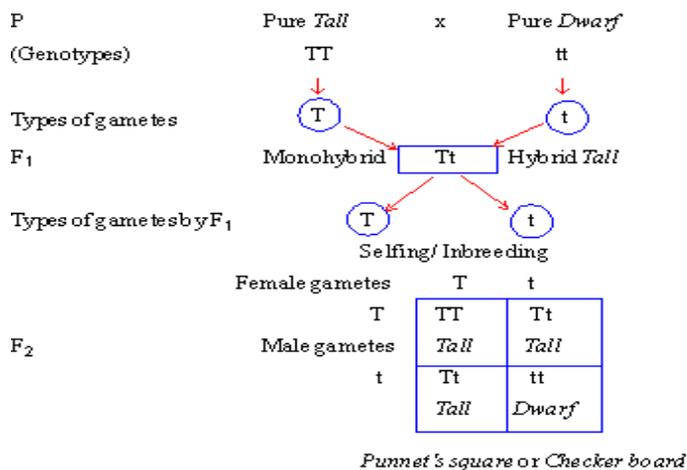
½
½ |
| 4 | (i) Availability of the special grade silicon for making solar cells is limited.

(ii) The process of manufacture is expensive, silver used for interconnections of the cells in the panel further adds to the cost. | 1

1 |
| 5 | The emergent ray CD is parallel to the incident ray AB, but it has been laterally displaced by a perpendicular distance CN with respect to the incident ray | 1 |



1



3

When Mendel first crossed pure tall pea plants with pure dwarf pea plants he found that only tall plants were produced in the first generation. No dwarf pea plants were obtained in the F₁. When F₁ were self pollinated, Mendel got both tall and dwarf plants in F₂ generation in 3:1

- 7 Image with magnification -1 means image is inverted and of the same size. Therefore, object is at 2F and the image is also at 2F on the other side of the lens.

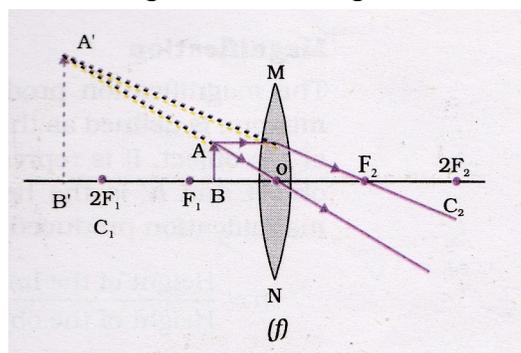
2

Therefore, distance between the object and its image is $4f = 60 \text{ cm}$

$$f = 15 \text{ cm}$$

Object distance $2f = 30 \text{ cm}$, if the object is shifted towards the lens by 20 cm, the new object distance = $30 \text{ cm} - 20 \text{ cm} = 10 \text{ cm}$.

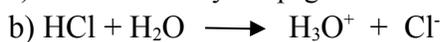
The distance is less than the focal length, and the image formed in this case would be virtual, erect and will form on the same side as the object.



1

- 8 a) NCERT activity 2.9 page 23

2



1

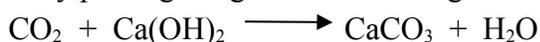
OR

- a) metal carbonates react with acids to form salt, water and carbon dioxide



1

- b. by passing the gas formed through lime water, lime water turns milky



1

When excess carbon dioxide is passed it becomes colourless due to the formation of calcium bicarbonate which is water soluble.



1

9 A-Seminal vesicle B- Prostate gland C- Testis D- Scrotum 1/4x4 =1

A & B-Secretes a fluid for transport and nourishment of the sperm 1

D-Helps to keep the testes at lower temperature for the production of sperms 1

10 (i)Resistivity of an alloy is generally higher and it does not oxidize easily. 3

(ii)In series arrangement, same current will flow through all the appliances which are not required and the equivalent resistance becomes higher, hence the current drawn become less.

(iii)They are extremely good conductors having low value of resistivity.

11 Situation in which live and neutral wire come in direct contact, abruptly increasing the current in the circuit is called short circuiting. 1

$$P = 1.5 \times 1000W = 1500 W$$

$$P = VI$$

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

$$= \frac{1500}{220} = 6.8 A \quad \text{1}$$

Electric current required 6.8 A is more than the current rating of the circuit. ie 5A. Hence the fuse will melt and the electric motor will stop working. 1

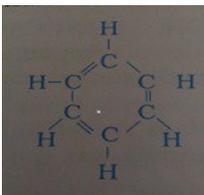
OR

(i)Due to change in magnetic flux linked with the coil, the galvanometer shows deflection towards the right. 1

(ii)Due to change in magnetic flux linked with the coil, the galvanometer shows deflection towards left. 1

(iii)As it is stationary, no change in magnetic flux linked with coil, so galvanometer shows no deflection 1

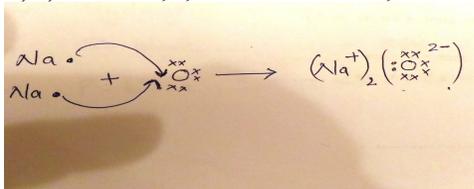
12 a)C₆H₆ 1/2



1/2

1/2

b) Na - 2,8,1 O - 2,6



1

type of bond – ionic bond

13

1/2 x 6 = 3

Mendeleev's periodic table	Modern periodic table
<ol style="list-style-type: none"> 1. Periodic law states that : properties of elements are the periodic functions of their atomic mass. 2. There are 8 groups and 6 periods. 3. No specific position for hydrogen. 4. Placing isotopes was a challenge. 	<ol style="list-style-type: none"> 1. Periodic law: properties of elements are the periodic functions of their atomic number. 2. There are 18 groups and 7 periods. 3. Separate position for hydrogen. 4. Isotopes could be easily placed.

* Any three points.

14 Study of homologous organs-Homologous - Organs which have the same basic structural design and origin but perform different functions.They are inherited from a common ancestor

1

Study of fossils-These are the dead remains or impressions of organisms.Comparing their organ structure with present day organisms will also enable us to trace evolutionary relationship.

1

Comparing DNA-This will give us a direct estimate of how much the DNA has changed during the formation of these species.

1

OR

The sudden,Unconscious,involuntary and automatic responses of muscles or glands to a stimulus.Removal of hand from hot objects/thorns or other examples.Controlled by spinal cord.(1+1+1)

15 a)This is a procedure used on patients whose kidneys have got damaged.In this process blood of the patient is allowed to pass through the long cellulose tubes dipped in a tank containing dialysing solution having same ionic concentration as plasma.

1

b)Diffusion

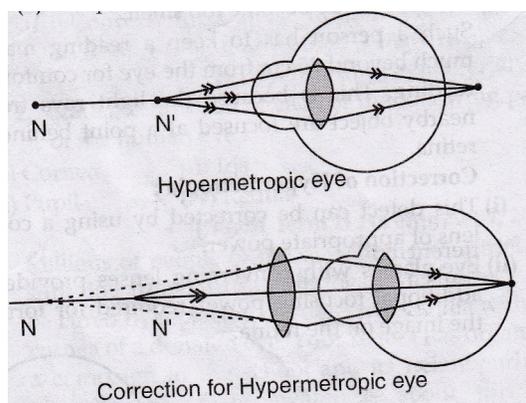
1

c)Love for mankind/Humanity or any other suitable answer.

1

16 (a)The person is suffering from hypermetropia.

1



2

Two possible causes

(a) Greater focal length of the lens.

1

(b) Eyeball becoming smaller

Use convex lens of focal length

$$U = -25 \text{ cm}$$

$$V = -50 \text{ cm}$$

$$\frac{1}{f} = \frac{1}{-50} - \frac{-1}{25}$$

$$f = 50 \text{ cm}$$

P = 2D is required.

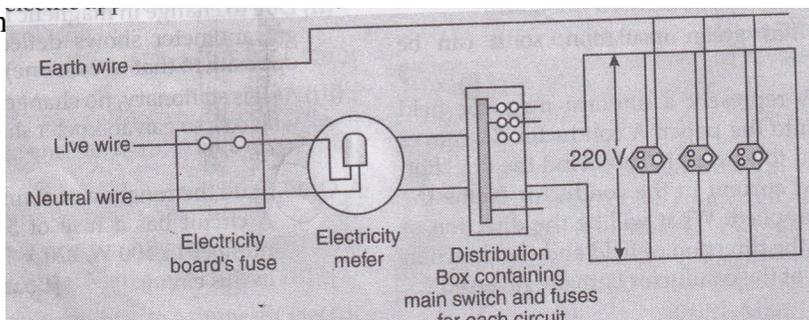
(b) Eye donation advertisements are important as:

(i) They make the people aware about donation of organs after their death.

1

(ii) Sym

17 (a)



3

(b) (i) It prevents damage to appliance due to overloading or short circuiting.

1

(ii) Earth wire is connected to a metallic body buried deep inside the earth.

It is used as a safety measure. It provides a low resistance conducting path for the current any leakage of current to a metallic body does not give shock to user.

1

18 a) Homologous series: a series of compounds in which the same functional group substitutes hydrogen in a carbon chain and with a difference of $-\text{CH}_2$ unit between two consecutive members.

1

b) Chemical property remains same in a homologous series. Physical properties increase due to the increase in $-\text{CH}_2$ unit.

1+1

1

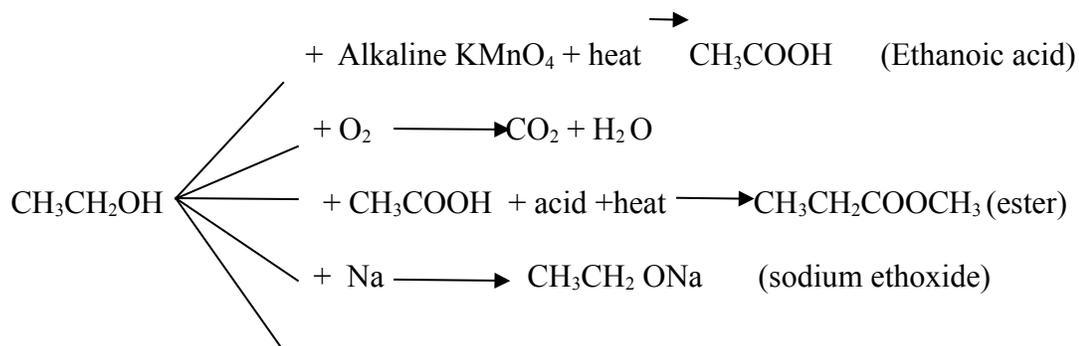
c) $\text{C}_3\text{H}_7\text{OH}$ propanol

d) Aldehyde

1

19 Complete the reaction and name the major products obtained.

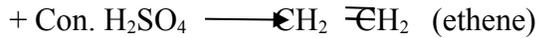
1



1

1

1



1

20 a) On an average, only 10% of the food available to a trophic level is transferred to the next trophic level. Since the amount of available energy keeps on becoming less as we move to higher trophic levels, so very little usable amount of energy remains after four trophic levels. So a food chain consists of 4-5 trophic levels

2

b) i). Social problems – Displaces large number of peasants and tribals

1

ii) Economic problems- Swallow up huge amount of public money without the generation of proportionate benefits

1

iii) Environmental problems-Loss of biodiversity

1

21 a) The timing and amount of hormone released are regulated by feedback mechanisms. If the sugar levels in blood rise, they are detected by the cells of the pancreas which respond by producing more Insulin. As the blood sugar level falls, insulin secretion is reduced and glucagon increases.

3

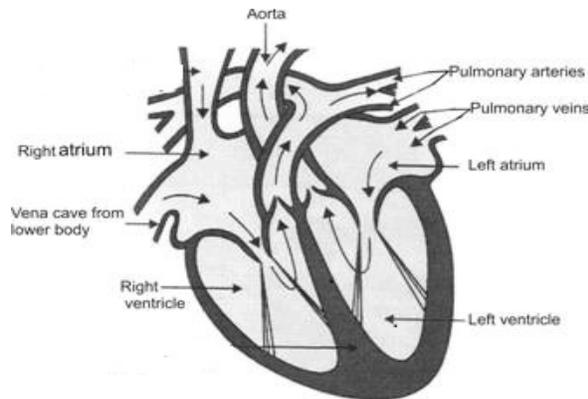
b) Medulla-Blood pressure and salivation or any two suitable answer

1

c) Cerebellum-Posture and balance of the body or any two suitable answer

1

OR



½ x 8 = 2

Muscular organ-4 chambers -Right and left auricles, Right and left ventricles.

3

Vena cava-Carries impure blood from upper and lower body parts-Pulmonary arteries-

Pulmonary veins-Aorta or great artery

SECTION B

22 KOH solution helps to absorb CO₂. So not able to produce vacuum in the conical flask-No change in the initial water level.

1+1=2

23 Vinegar contains acetic acid.

1

Vinegar reacts with sodium carbonate to form salt, carbon dioxide and water. It's acidic in nature.

1

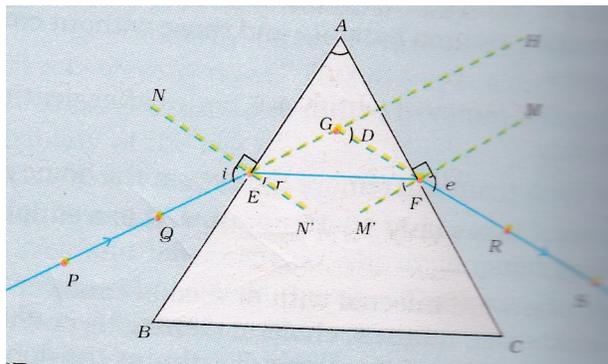
24 i) A) Micropyle B) Cotyledons C) Radicle

1 ½

ii) Provide nourishment to the growing embryo

½

25



2

26

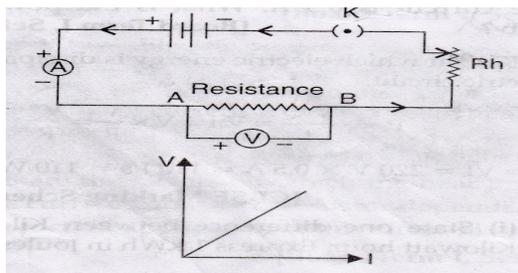
Ohm's law states that physical conditions remaining the same, the current flowing through a conductor is directly proportional to the potential difference across its two ends.

1

$$V=IR$$

1

R is the resistance of the conductor



OR

(a)The ammeter reading will decrease (becomes half).This is because with the increase in length, resistance of the circuit increases, hence current decreases.

1

(b)The ammeter reading will increase (becomes two times). This is because as area increases, resistance decreases and hence current increases.

1

27 Green colour Ferrous sulphate changes to colourless due to the formation of aluminum sulphate. As aluminum is more reactive than iron.

1+1

