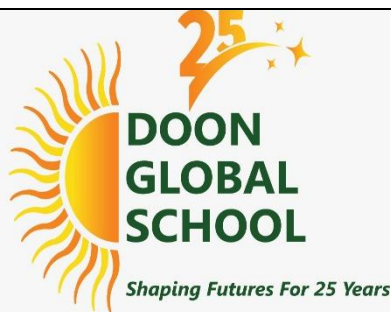




DOON GLOBAL SCHOOL

PRE-BOARD -I (2024-25)

CLASS - X

SUBJECT-SCIENCE (086)

SET-1

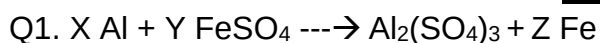
TIME -3 Hrs.

M. MARKS- 80

General Instructions:

- This question paper consists of 39 questions in 5 sections.
- All questions are compulsory. However, an internal choice is provided in some questions.
- Section A consists of 20 objective type questions carrying 1 mark each.
- Section B consists of 6 Very Short questions carrying 02 marks each.
- Section C consists of 7 Short Answer type questions carrying 03 marks each.
- Section D consists of 3 Long Answer type questions carrying 05 marks each.
- Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

SECTION-A (1×20=20)

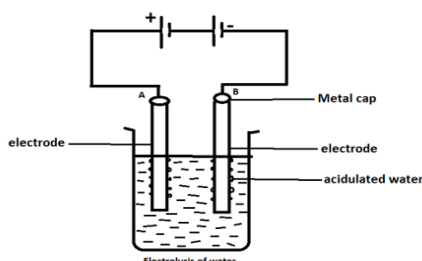


In the above reaction X, Y and Z can be replaced by:

- X-2, Y-2, Z-2
- X-2, Y-3, Z-3
- X-3, Y-2, Z-2
- X-3, Y-3, Z-3

Q2. In the given picture the ratio of gases produced at cathode and anode is respectively:

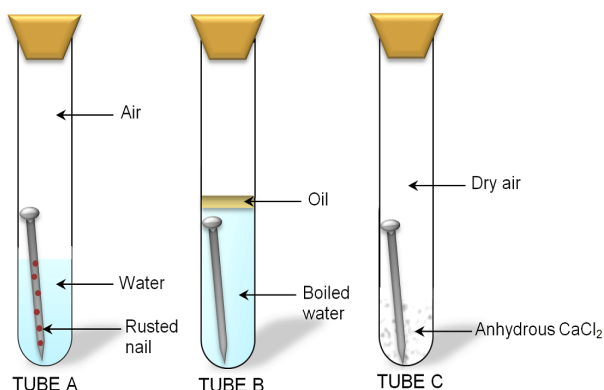
- 2:1
- 2:3
- 3:1
- 1:2



Q3. A solution reacted with crushed egg shells to give a gas that turns lime water milky. The solution contains:

- (a) NaCl
- (b) KCl
- (c) LiCl
- (d) HCl

Q4. In the given picture which nail get rusted?



- (a) Test tube A
- (b) Test tube B
- (c) Test tube C
- (d) All of the above

Q5. Which of the following pair will give the displacement reaction?

- (a) $\text{NaCl} + \text{Cu}$
- (b) $\text{MgCl}_2 + \text{Al}$
- (c) $\text{FeSO}_4 + \text{Ag}$
- (d) $\text{AgNO}_3 + \text{Cu}$

Q6. Propane with molecular formula C_3H_8 has:

- (a) 6 covalent bond
- (b) 10 Covalent bond
- (c) 9 Covalent bond
- (d) 8 Covalent bond

Q7. Which of the following functional group is present in Pentanone?

- (a) -OH
- (b) -CHO
- (c) -CO
- (d) -COOH

Q8. Which is the correct sequence of air passage during inhalation?

- (a) Nostril $\rightarrow$ Pharynx $\rightarrow$ Larynx $\rightarrow$ Trachea $\rightarrow$ Alveoli
- (b) Nostril $\rightarrow$ Larynx $\rightarrow$ Pharynx $\rightarrow$ Trachea $\rightarrow$ Lungs

(c) Nasal passage → Trachea → Pharynx → Lungs → Alveoli

(d) Larynx → Nostrils → Pharynx → Alveoli → Lungs

Q9. In a closed circulatory system, blood is completely enclosed within:

- (a) Heart
- (b) Skeleton
- (c) Sinus
- (d) Vessels

Q10. If salivary amylase is lacking in the saliva, which of the following event in the mouth cavity will be affected?

- (a) Breaking down of proteins into amino acids
- (b) Breaking of starch into sugar
- (c) Breaking of fat into fatty acids and glycerol
- (d) Absorption of vitamins

Q11. Which of the following statements are true about brain?

- (i) The main thinking part of the brain is hind brain
 - (ii) Centres of hearing, smell, memory and sight etc are in fore brain
 - (iii) Involuntary actions like salivation, vomiting and blood pressure are controlled by medulla
 - (iv) Cerebellum does not control posture and balance of the body
- (a) i and ii
 - (b) i, ii and iii
 - (c) ii and iii
 - (d) iii and iv

Q12. Two pink coloured flower on crossing resulted in one red, two pink and one white flower progeny. The nature of cross will be

- (a) Double fertilisation
- (b) Self pollination
- (c) External fertilisation
- (d) Cross fertilisation

Q13. When a beam of white light passes through a region having very fine dust particles, the colour of light mainly scattered in that region is :

- (a) Red
- (b) Orange
- (c) Blue
- (d) Yellow

Q14. Find the position of real image formed by a concave mirror of focal length 50 cm having magnification – 1:

- (a) 50 cm
- (b) 100 cm
- (c) 200 cm
- (d) Zero

Q15. A person is advised to use lenses of power – 0.25 D for the correction of his defect of vision. It implies that the person is suffering from:

- (a) hypermetropia and he has to use converging lens of focal length 25 cm in his spectacles.
- (b) hypermetropia and he has to use diverging lens of focal length 4 m in his spectacles.
- (c) myopia and he has to use diverging lens of focal length 4 m in his spectacles.
- (d) myopia and he has to use diverging lens of focal length 25 cm in his spectacles.

Q16. An electric iron of resistance 20Ω draws a current of 5 A. The heat developed in the iron in 30 seconds is :

- (a) 15000 J
- (b) 6000 J
- (c) 1500 J
- (d) 3000 J

For Questions number 17 to 20, two statements are given —

One labelled as Assertion (A) and the other labelled as Reason (R).

Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

Q17. Assertion (A): The commercial unit of electric energy is kilowatt hour (kWh).

Reason (R): $1 \text{ kWh} = 10^6 \text{ joule (J)}$

Q18. Assertion (A): Magnetic field lines never intersect each other.

Reason (R): If they intersect, then at the point of intersection, the compass needle would point towards two directions, which is not possible.

Q19. . Assertion (A): $\text{PbO}_2 + 4\text{HCl} \rightarrow \text{PbCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$ is redox reaction

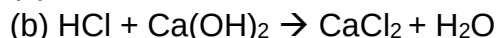
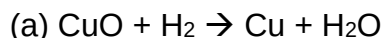
Reason (R): PbO_2 is getting reduced in to PbCl_2 and HCl is getting oxidized in to Cl_2

Q20. Assertion (A): Evolution is an extremely slow process.

Reason (B): New characters are accumulated in an organism during its life time

SECTION-B (2×6=12)

Q21. . Identify the type (other than displacement) of each of the following reactions also state the reason for your answer:



Q22. . Differentiate between the following on the basis of the following

Feature	Xylem	Phloem
Direction of transportation		
Substance transported		

Q23. Which mode of nutrition followed by amoeba? Draw the well labelled diagram to show the nutrition in amoeba.

OR

State the role of the following in human alimentary canal:

(a) HCL (b) Mucus (c) Villi (d) Bile Juice

Q24. (a) Draw a ray diagram to show the formation of a rainbow in the sky. Mark on the diagram three points A, B and C as given below :

A – where dispersion of light occurs

B – where internal reflection of dispersed light occurs

C – where refraction of dispersed light occurs

OR

(b) Name the muscles present in the human eye which enable it to focus on objects at varied distances (i.e., distant as well as nearby objects). Explain how it happens.

Q25. Draw a labelled ray diagram to show the formation of image due to a concave mirror when an object is placed between its pole and principal focus

Q26. List two main components of an ecosystem. We do not clean natural ponds or lakes but an aquarium needs to be cleaned regularly, comment on it.

SECTION-C (3×7=21)

Q27. Give reasons for the followings:

- (a) Ionic compounds have high melting and high boiling point.
- (b) Sodium is kept immersed in kerosene.
- (c) A silver article becomes black when kept open in air.

Q28. (a) Sometimes the pH of our mouth gets lower than 5.5 why?
(b) Why do Copper sulphate crystals turn white on heating?
(c) Comment on – sour substances should not be kept in copper vessels.

Q29. Explain the given reaction with suitable chemical equation:

Hydrogenation reaction, Substitution reaction, Combustion reaction

Q30. (a) Why is it important to prevent oxygenated and deoxygenated blood from mixing in birds and animals?

(b) Which animals can tolerate some mixing of oxygenated and deoxygenated blood streams?
On which factor does the body temperature of these animals depend?

(c) Why double circulation of blood is necessary in human beings?

Q31. (a) What will be the colour of the flower in F₁ generation, if a pure dominant (homozygous) violet flower of pea plant is crossed with a pure recessive (homozygous) white flower plant? Draw the cross diagram in support of your answer. And write the genotype of both parents and F₁ generation.

(b) State any two differences between acquired and inherited traits.

Q32. Define the term power of accommodation of human eye. What happens to the image distance in the eye when we increase the distance of an object from the eye? Name and explain the role of the part of human eye responsible for it in this case.

Q33. A student fixes a sheet of white paper on a drawing board. He places a bar magnet in the centre of it. He sprinkles some iron filings uniformly around the bar magnet. Then he taps the drawing board gently and observes that the iron filings arrange themselves in a particular pattern.

- (a) Why do iron filings arrange in a particular pattern?
- (b) What does the crowding of iron filings at the ends of the magnet indicate?
- (c) What do the lines, along which the iron filings align, represent?

SECTION-D (5×3=15)

Q34. Raman has a hydrocarbon which has molecular formula C₂H₆. Which type of flame this compound will give on combustion and why? Draw electron dot structure of this hydrocarbon. Write just next two homologues of C₂H₆ also state any two characters of these homologues.

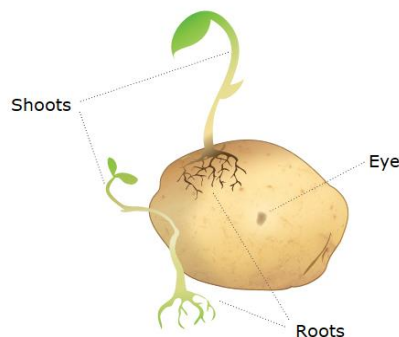
OR

(a) Methane, propane and their isomers are used as fuel, comment.

(b) Name two properties of carbon which lead to the huge number of carbon compounds we see around us? Also explain these properties.

(c) Detergents are better cleaning agents than soap. Justify the statement.

Q35. A) A potato plant reproduces through the bud (eyes). A potato tuber has many buds and each bud can produce a new potato plant.



(i) Name the mode of reproduction that is shown in the image above.

(ii) List two advantages the farmers will have on using the type of reproduction mentioned above.

(iii) Name any other plant which reproduce by using the above mode of reproduction also explain the method with the help of suitable diagram.

(iv) State any two advantages of tissue culture.

OR

B) (i) Draw the female reproductive system and label the following parts.

Fallopian tube, Ovary, Uterus

(ii) Explain chemical and surgical methods of birth control.

Q36. (a) The variation of image distance (v) with object distance (u) for a convex lens is given in the following observation table. Analyse it and answer the questions that follow:

S.No.	Object distance (u) cm	Image distance (v) cm
1	-150	+ 30
2	-75	+ 37.5
3	-50	+ 50
4	-37.5	+ 75
5	-30	+ 150
6	-15	+ 37.5

(i) Without calculation, find the focal length of the convex lens. Justify your answer.

(ii) Which observation is not correct why? Draw ray diagram to find the position of the image formed for this position of the object.

(iii) Find the approximate value of magnification for $u = 30\text{ cm}$.

OR

(b)

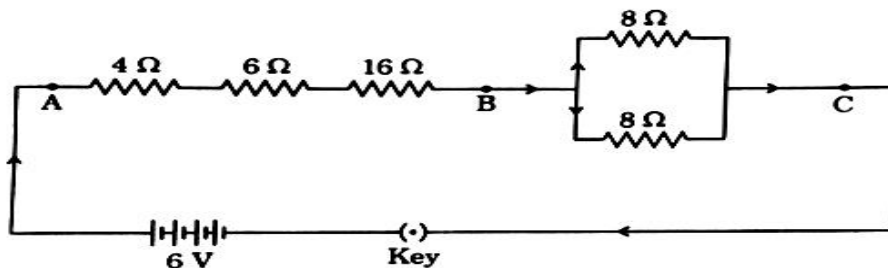
(i) Define principal axis of a lens. Draw a ray diagram to show what happens when a ray of light parallel to the principal axis of a concave lens passes through it.

(ii) The focal length of a concave lens is 20 cm . At what distance from the lens should a 5 cm tall object be placed so that its image is formed at a distance of 15 cm from the lens? Also calculate the size of the image formed.

SECTION- E (4×3=12)

Q37. Study the following circuit :

On the basis of this circuit, answer the following questions :



(a) Find the value of total resistance between the points A and B.

(b) Find the resistance between the points B and C.

(c) (i) Calculate the current drawn from the battery, when the key is closed.

OR

(c) (ii) In the above circuit, the 16Ω resistor or the parallel combination of two resistors of 8Ω , which one of the two will have more potential difference across its two ends? Justify your answer.

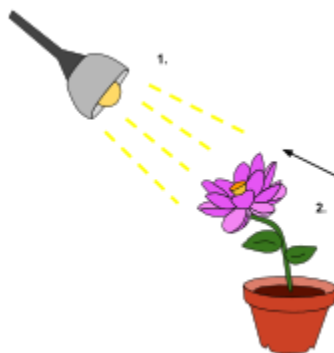
Q38. Esters are the group of organic compounds which contain the functional group $(-\text{COOR})$ called ester group. The value of R may change as $-\text{CH}_3$, C_2H_5 etc.

(a) Explain the synthesis of ester also write the chemical equation involved.

(b) How the ester can be converted in to soap explain and also write the chemical equation.

(c) Write any two uses of ester.

Q39.



(a) Name the phenomenon which is represented by the above diagram and define it.

(b) How does the auxin help in bending of plant towards light? Explain.

(c) Give the suitable term for the following phenomenon:

(i) Movement of root towards the gravity

(ii) Growth of pollen tube towards the ovary