

# Sample Paper

# 7

Time : 90 Minutes

Max. Marks : 40

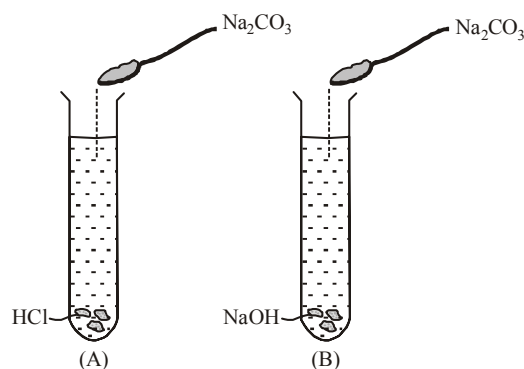
## General Instructions

1. The Question Paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

## SECTION-A

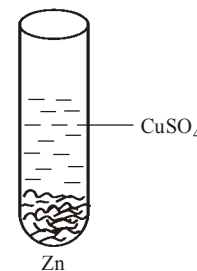
Section – A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

1.

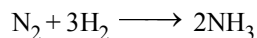


Which of the following observation is correct for above reactions shown in figure?

- (a) a brown coloured gas liberated in test tube A.
  - (b) a brown coloured gas liberated in test tube B.
  - (c) a colourless gas liberated in test tube A.
  - (d) a colourless gas liberated in test tube B.
2. Which salt can be classified as an acid salt?
- (a)  $\text{Na}_2\text{SO}_4$
  - (b)  $\text{CH}_3\text{COONa}$
  - (c)  $\text{Pb}(\text{OH})\text{Cl}$
  - (d)  $\text{Na}_2\text{HPO}_4$
3. A student added zinc granules to copper sulphate solution taken in a test tube. Out of the following, the correct observation made by the student will be –
- (a) zinc granules have a regular shape after the reaction.
  - (b) zinc granules have silvery grey colour after the reaction.
  - (c) the colour of zinc granules changes to brownish black.
  - (d) Colour of solution changes to blue.
4. In the following equations :
- $$\text{Na}_2\text{CO}_3 + x \text{HCl} \rightarrow 2 \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$$
- the value of x is–
- (a) 1
  - (b) 2
  - (c) 3
  - (d) 4

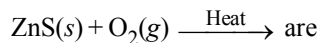


5. Of the aqueous solutions listed below, which would be the best conductor of an electric current?  
 (a) HCl (b)  $\text{H}_3\text{PO}_4$  (c) HOCl (d)  $\text{CH}_3\text{COOH}$
6. Magnesium ribbon is rubbed with sand paper before making it to burn. The reason of rubbing the ribbon is to:  
 (a) remove moisture condensed over the surface of ribbon.  
 (b) generate heat due to exothermic reaction.  
 (c) remove magnesium oxide formed over the surface of magnesium.  
 (d) mix silicon from sand paper (silicon dioxide) with magnesium for lowering ignition temperature of the ribbon.
7. Ammonia gas is formed by the combination of nitrogen and hydrogen

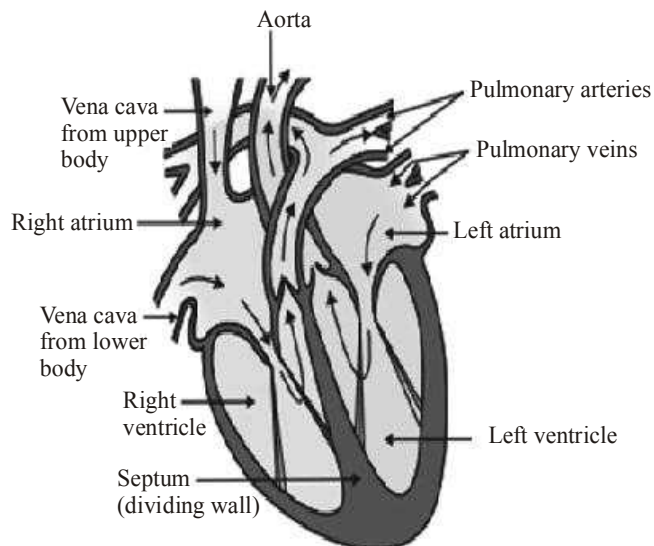


In the above equation, which of the following is not correct ?

- (a) Nitrogen and hydrogen are reactants.  
 (b) One molecule of nitrogen combines with 3 molecules of hydrogen and form two molecules of ammonia.  
 (c) One volume of nitrogen and three volume of hydrogen combine and give 2 volumes of ammonia gas.  
 (d) Reactants and products are not gaseous.
8. Which of the following combination is correct ?
- | Compound  | Strength  |
|---|-----------|
| (a) KOH, NaOH   | Monobasic |
| (b) $\text{Ca}(\text{OH})_2$ , $\text{Mg}(\text{OH})_2$ | Diacidic  |
| (c) $\text{H}_2\text{SO}_4$ , $\text{H}_3\text{PO}_3$   | Dibasic   |
| (d) $\text{H}_3\text{PO}_4$ , $\text{H}_3\text{PO}_3$   | Tribasic  |
9. The major products of the following reaction,

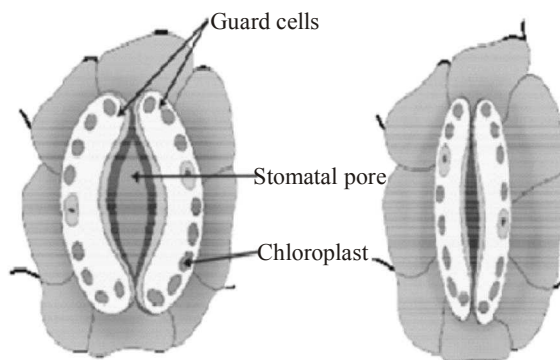


- (a) ZnO and  $\text{SO}_2$  (b)  $\text{ZnSO}_4$  and  $\text{SO}_3$   
 (c)  $\text{ZnSO}_4$  and  $\text{SO}_2$  (d) Zn and  $\text{SO}_2$
10. Select the incorrect statement  
 (a) Formation of  $\text{NH}_3$  from  $\text{N}_2$  and  $\text{H}_2$  is a combination reaction  
 (b) Calcination of zinc carbonate is a decomposition reaction.  
 (c) Reaction of aqueous  $\text{BaCl}_2$  solution with dilute  $\text{H}_2\text{SO}_4$  is a double displacement reaction.  
 (d) Rancidity of oils is not a redox reaction.
11. Which of the following blood vessels bring originated blood from the lungs to the heart ?

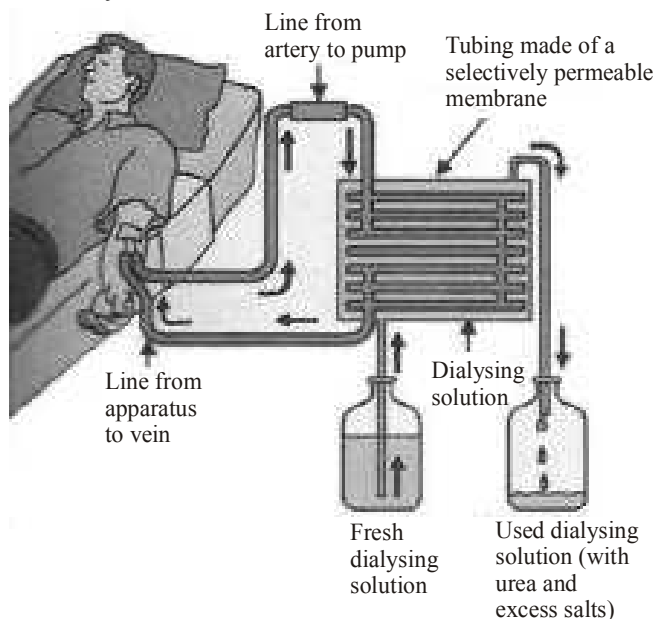


- (a) Pulmonary Veins (b) Pulmonary Arteries  
 (c) Renal Artery (d) Renal Vein

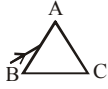
12. During the day, the plants keep their



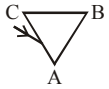
- (a) stomata opens      (b) stomata closed      (c) phloem blocked      (d) xylem blocked
13. What are the products obtained by anaerobic respiration in yeast cell?  
 (a) Lactic acid + Energy      (b) Carbon dioxide + Water + Energy  
 (c) Ethanol + Carbon dioxide + Energy      (d) Pyruvate
14. The exist of unabsorbed food material is regulated by  
 (a) lever      (b) anus      (c) small intestine      (d) sphincter
15. Main function of Henle's loop is \_\_\_\_\_  
 (a) Passage of urine      (b) Filtration of blood      (c) Formation of urine      (d) Concentration of urine
16. How often must hemodialysis usually be done?



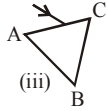
- (a) Every day      (b) Once a week      (c) Twice a week      (d) 3 times a week
17. The turning back of light into the same medium after incident on a boundary separating two media is called  
 (a) reflection of light      (b) refraction of light  
 (c) dispersion of light      (d) interference of light
18. Rays from the sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?  
 (a) 15 cm in front of the mirror      (b) 30 cm in front of the mirror  
 (c) between 15 cm and 30 cm in front of the mirror      (d) more than 30 cm in front of the mirror.
19. An object placed at infinity of a concave mirror will produce an image  
 (a) at focus      (b) highly diminished  
 (c) real and inverted      (d) All of these

20. In torches, search lights and headlights of vehicles the bulb is placed  
 (a) between the pole and the focus of the reflector  
 (b) very near to the focus of the reflector  
 (c) between the focus and centre of curvature of the reflector  
 (d) at the centre of curvature of the reflector
21. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in Fig. In which of the following cases, after dispersion, the third colour from the top corresponds to the colour of the sky?
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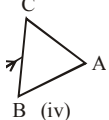
(i)



(ii)



(iii)



(iv)
- (a) (i)                      (b) (ii)                      (c) (iii)                      (d) (iv)
22. A concave lens has focal length of 15 cm. At what distance should the object from the lens be placed so that it forms an erect and virtual image at 10 cm from the lens?  
 (a) 30 cm                      (b) 15 cm                      (c) 60 cm                      (d) 10 cm
23. A ray of light propagates from an optically denser medium to an optically rarer medium.  
 (a) It will bend towards the normal after refraction.  
 (b) It will bend away from the normal after refraction.  
 (c) It will continue to go on the same path after refraction.  
 (d) It will refract making an angle of refraction = angle of incidence.
24. Magnification produced by a rear view mirror fitted in vehicles  
 (a) is less than one  
 (b) is more than one  
 (c) is equal to one  
 (d) can be more than or less than one depending upon the position of the object in front of it.

## SECTION-B

Section – B consists of 24 questions (Sl. No.25 to 48). Attempt **any 20** questions from this section. The first attempted 20 questions would be evaluated.

25. X is an aqueous solution of acid and Y is an aqueous solution of base. When these two are diluted separately, then  
 (a) pH of X increases while that of Y decreases till neutralisation.  
 (b) pH of X decreases while that of Y increases till neutralisation.  
 (c) pH of both X and Y decrease.  
 (d) pH of both X and Y increase
26. A metal 'M' of moderate reactivity is present as its sulphide 'X'. On heating in air, 'X' converts into its oxide 'Y' and a gas evolves. On heating 'Y' and 'X' together, the metal 'M' is produced. 'X' and 'Y' respectively are  
 (a) 'X' cuprous sulphide, 'Y' cuprous oxide                      (b) 'X' cupric sulphide, 'Y' cupric oxide  
 (c) 'X' sodium sulphide, 'Y' sodium oxide                      (d) 'X' calcium sulphide, 'Y' calcium oxide
27. The process of respiration is :  
 (a) Oxidation reaction which is endothermic                      (b) Reduction reaction which is endothermic  
 (c) Combination reaction which is exothermic                      (d) Oxidation reaction which is exothermic
28. Methyl orange is  
 (a) Pink in acidic medium, yellow in basic medium                      (b) Yellow in acidic medium, pink in basic medium  
 (c) Colourless in acidic medium, pink in basic medium                      (d) Pink in acidic medium, colourless in basic medium
29. Which of the following is a correct match ?

## Column-I

- (a) Good conductor of electricity  
 (b) Food preservative  
 (c) Allotrope of carbon  
 (d) Manufacture of ammonia

## Column-II

- (p) Hydrogen  
 (q) Nitrogen  
 (r) Copper  
 (s) Graphite

30.  $2\text{SO}_2 + \text{O}_2 \longrightarrow 2\text{SO}_3 + 42 \text{ kcal}$ . The above reaction is—  
 (i) endothermic reaction (ii) exothermic reaction (iii) combination reaction (iv) displacement reaction  
 (a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)

Question No. 31 to 35 consist of two statements—Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

31. **Assertion :** All alkalis are bases but all bases are not alkali.

**Reason :** Water soluble bases are alkali.

32. **Assertion :** Nitrate ores are rarely available.

**Reason :** Bond dissociation energy of nitrogen is very high.

33. **Assertion:** During anaerobic respiration glucose is partially oxidised.

**Reason:** Anaerobic respiration proceeds in the absence of oxygen.

34. **Assertion :** Speed of light decreases, when it travels from air to water.

**Reason :** Speed of light in water.

$$= \frac{\text{Speed of light in air}}{\text{Refractive index of water}}$$

35. **Assertion :** Chlorine gas react with potassium iodide solution to form potassium chloride and iodine.

**Reason :** Chlorine is more reactive than iodine therefore displaces iodine from potassium iodide.

36. Single circulation, i.e., blood flows through the heart only once during one cycle of passage through the body, is exhibited by which of the following:

- (a) hyla, rana, draco (b) whale, dolphin, turtle  
 (c) labeo, chameleon, salamander (d) hippocampus, exocoetus, anabas

37. The procedure used for cleaning the blood of a person by separating urea from it is called:

- (a) osmosis (b) filtration  
 (c) dialysis (d) double circulation

38. Which of the following statements about autotrophs is incorrect ?

- (a) They synthesize carbohydrates by using carbon dioxide, water in presence of sunlight and chlorophyll  
 (b) They store carbohydrates in form of starch  
 (c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight  
 (d) They form the first trophic level in food chain

39. An object is placed at a distance  $2f$  from the pole of a convex mirror of focal length  $f$ . The linear magnification is

- (a)  $\frac{1}{3}$  (b)  $\frac{2}{3}$  (c)  $\frac{3}{4}$  (d) 1

40. Dispersion of light is defined as

- (a) splitting of white light into seven colours (b) splitting of white light into five colours  
 (c) splitting of white light into six colours (d) splitting of white light into any number of colours

41. In which of the following groups of organisms, food materials are broken down outside the body and absorbed?

- (a) Mushroom, green plants, Amoeba (b) Yeast, mushroom, bread mould  
 (c) Paramecium, Amoeba, Cuscuta (d) Cuscuta, lice, tapeworm

42. If salivary amylase is lacking in saliva, which of the event in mouth will be affected-
- (a) Proteins breaking down into amino acids      (b) starch breaking down into sugars  
(c) Fats breaking down into fatty acids and glycerol      (d) Absorption of vitamins
43. Consider the following statements:  
(A) The speed of light is higher in a rarer medium than in a denser medium.  
(B) When a ray of light travels from air to water, its speeds up.  
Which of these statement(s) is/are correct?
- (a) (A) only      (b) (B) only  
(c) Both (A) and (B)      (d) Neither (A) nor (B)
44. An image formed by a convex mirror is always  
(a) virtual, erect and diminished  
(b) virtual, real and magnified  
(c) real, inverted and diminished  
(d) real, erect and magnified
45. The focus of a concave mirror is  
(a) real      (b) virtual      (c) undefined      (d) at the pole
46. A converging mirror is known as  
(a) convex mirror      (b) plane mirror      (c) concave mirror      (d) cylindrical mirror
47. The centre of the sphere of which the spherical mirror forms a part is called  
(a) centre of curvature      (b) focus      (c) pole      (d) vertex
48. 
$$\text{A} \xrightarrow{\text{Na}_2\text{CO}_3} \text{Caustic soda.}$$
  
(used for water softening to remove temporary hardness)
- What is A ?  
(a) Gypsum      (b) Slaked lime      (c) Quick lime      (d) Lime stone

### SECTION-C

*Section – C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section. The first attempted 10 questions would be evaluated.*

#### Case-I

Elements can be classified as metals or non-metals on the basis of their properties. The easiest way to start grouping substances is by comparing their physical properties. Metals, in their pure state, have a shining surface. This property is called metallic luster. metals are generally hard. The hardness varies from metal to metal. some metals are used for making cooking vessels.

49. The most abundant metal in the earth's crust is -  
(a) iron      (b) copper      (c) aluminium      (d) mercury
50. The metal that reacts with steam is -  
(a) mercury      (b) iron      (c) zinc      (d) tungsten
51. Metal present in chloroplast is  
(a) Iron      (b) Copper      (c) Magnesium      (d) Cobalt
52. Which of the following metal(s) catch fire on reaction with water?  
(a) Sodium      (b) Potassium      (c) Magnesium      (d) both (a) and (b)

#### Case-II

**Case-A student performed an experiment to study for Photosynthesis.** He inserted a part of the leaf of a destarched plant into a conical flask containing potassium hydroxide. Potassium hydroxide solution absorbs the carbon dioxide gas from the air present in the glass bottle. He left the plant into sunlight. After few hours, He performed a starch test to this and another leaf of the same plant. He observed that leaf exposed to the atmosphere are bluish black. But leaf exposed to KOH does not change to blue-black colour.

53. The above experiment proves that during photosynthesis
- (a) carbon dioxide is necessary (b) oxygen is released  
(c) organic substance is produced (d) chlorophyll is necessary
54. Which compound was used in the experiment to absorb Carbon dioxide.
- (a)  $\text{KMNO}_4$  (b)  $\text{HCl}$   
(c)  $\text{KOH}$  (d)  $\text{NaOH}$
55. Bluish-black colour of leaf gives
- (a) Presence of starch in the leaf. (b) absence of starch in the leaf.  
(c) Presence of water in the leaf (d) all of the above
56. Which is correct regarding Photosynthesis?
- (a) Carbon dioxide is obtained from the atmosphere (b) Water is absorbed from the soil through stem system  
(c) Sunlight is trapped by xanthophyll pigment (d) Chlorophyll absorbs green light

## Case-III

When light passes from rarer to denser medium it bends toward the normal. Using Snell's law

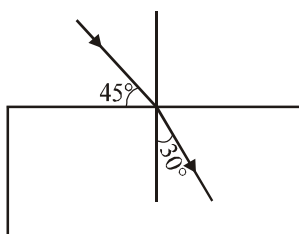
$$\mu_1 \sin \theta_1 = \mu_2 \sin \theta_2$$

$$\Rightarrow \frac{\sin \theta_1}{\sin \theta_2} = \frac{\mu_2}{\mu_1}$$

For  $\mu_2 > \mu_1$  then  $\theta_2 < \theta_1$

For  $\mu_1 > \mu_2$  then  $\theta_1 < \theta_2$

57. One light wave is incident upon a plate of refractive index  $\mu$ . The incident angle  $i$ , for which refractive and reflective waves are mutually perpendicular is
- (a)  $i = \tan^{-1}(\mu)$  (b)  $i = \sin^{-1}(\mu)$  (c)  $i = \cos^{-1}(\mu)$  (d)  $i = \cot^{-1}(\mu)$
58. Figure shows the path of ray of light passing through a glass slab. Which of the following statements is/are correct?



- (I) The refractive index of glass applying Snell's law is  $\sqrt{3}$   
(II) The refractive index of glass applying Snell's law is  $\sqrt{2}$   
(III) The speed of light decreases
- (a) only I is true (b) only II is true (c) only II and III is true (d) only I and III is true
59. The velocity of light in air is  $3 \times 10^8 \text{ ms}^{-1}$ . If the refractive index of water is  $4/3$ , the velocity of light in water is
- (a)  $2.5 \times 10^8 \text{ m/s}$  (b)  $1.5 \times 10^8 \text{ m/s}$  (c)  $4.8 \times 10^8 \text{ m/s}$  (d)  $6 \times 10^8 \text{ m/s}$
60. The angle of incidence in air for a ray of light is  $40^\circ$ . If ray travels through water of refractive index  $\frac{4}{3}$ . The angle of refraction is
- (a)  $20^\circ$  (b)  $25^\circ$  (c)  $28.82^\circ$  (d)  $29.76^\circ$