Sample/Pre-Board Paper 35

Class X Term 1 Exam Nov -Dec 2021

Science (086)

Time: 90 Minutes

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. The reaction between carbon and oxygen can be represented as

$$C(s) + O_2(g) \xrightarrow{\Delta} CO_2(g) + \text{Heat}$$

In which of the following type(s), the above reaction can be classified?

1. Combustion reaction
2. Displacement reaction
3. Endothermic reaction
4. Combination reaction

(a) 1 and 3 (b) 1, 3 and 4
(c) 1 and 4 (d) 1 Only

2. Calamine is used to reduce the irritating effect of ant bite/sting because it reacts with (X) released due to the bite/sting of ants with (Y) present in calamine. Then (X) and (Y) respectively are :

(a) Sodium hydrogen carbonate and formic acid
(b) Formic acid and zinc carbonate
(c) Acetic acid and common salt
(d) Hydrochloric acid and zinc oxide

3. 2 mL each of concentrated HCl, HNO_3 and a mixture of concentrated HCl and concentrated HNO_3 in the ratio of 3 : 1 were taken in test tubes labelled as A, B and C. A small piece of metal was put in each test tube. No change occurred in test tubes A and B but the metal got dissolved in test tube C respectively. The metal could be

(a) Al (b) Au
(c) Cu (d) Pt

4. The addition of hydrogen to a substance is known as:

(a) Oxidation
(b) Reduction
(c) Redox reaction
(d) Precipitation

5. Which of the following represents the correct order of the acidic strength for equimolar aqueous solutions of HCl, H_2SO_4, NH_4OH and NaOH

(a) $HCl < NH_4OH < NaOH < H_2SO_4$
(b) $NH_4OH < NaOH < H_2SO_4 < HCl$
(c) $HCl < H_2SO_4 < NH_4OH < NaOH$
(d) $NaOH < NH_4OH < HCl < H_2SO_4$

6. Which of the following equation is exothermic reaction?

(a) $N_2 + 3H_2 \longrightarrow 2NH_3 + \text{Heat}$
(b) $N_2 + O_2 \longrightarrow 2NO - \text{Heat}$
(c) $CuO + H_2 \longrightarrow Cu + H_2O$
(d) $Mg + Cl_2 \longrightarrow MgCl_2$

7. Precipitate in a reaction is indicated by which arrow mark?

(a) $\leftarrow$ (b) $\uparrow$
(c) $\rightarrow$ (d) $\downarrow$

8. A silvery white metal X reacts with water at room temperature to produce a water soluble compound Y and a colourless gas Z. The reaction is highly exothermic and the Z catches fire immediately during the reaction. The solution of Y in water on reacting with stoichiometric amount of dilute solution of hydrochloric acid gives a solution of pH $= 7.0$. The compounds X, Y and Z respectively are-

(a) Al, $Al(OH)_3$ and H_2
(b) Ag, AgOH and H_2
(c) K, KCl and H_2
(d) Na, NaOH and H_2

9. ..... acid is used in car battery.

(a) Nitric (b) Sulpharic
(c) Carbonic (d) Tartaric

10. The following reaction is used for the preparation of oxygen gas in the laboratory

$$2KClO_3(s) \xrightarrow[\text{Catalyst}]{\text{Heat}} 2KCl(s) + 3O_2(g)$$

Which of the following statement(s) is(are) correct about the reaction?

(a) It is a decomposition reaction and endothermic in nature.

(b) It is a combination reaction.

(c) It is a decomposition reaction and accompanied by release of heat.

(d) It is a photochemical decomposition reaction and exothermic in nature.

11. The kidney in human beings are a part of the system for?

(a) Nutrition (b) Respiration

(c) Excretion (d) Transportation

12. Which body organ is responsible for the complete digestion of carbohydrates, fats and protein?

(a) Stomach (b) Large intestine

(c) Liver (d) Small intestine

13. Human body stores energy in form of:

(a) Glucose (b) Insulin

(c) glycogen (d) Fructose

14. Chlorophyll-containing organs of plant are-

(a) Stem

(b) Roots

(c) Leaves

(d) Flowers

15. Just as CO_2 is removed from the blood in the lungs, nitrogenous waste such as urea or uric acid are removed from blood in the -

(a) Kidney

(b) Urinary bladder

(c) Urethra

(d) Ureters

16. Choose the correct pathway of urine in our body-

(a) Kidney → ureter → urethra → urinary bladder

(b) Kidney → Ureter → urinary bladder → urethra

(c) Kidney → urinary bladder → urethra → Ureter

(d) Kidney → urethra → Ureter → urinary bladder

17. If an object is placed 10 cm infront of a concave mirror of focal length 20 cm, the image will be

(a) Diminished, upright, virtual

(b) Enlarged, upright, virtual

(c) Diminished, inverted, real

(d) Enlarged, upright, real

18. One light wave is incident upon a plate of refracting index μ. Incident angle i, for which refractive and reflective waves are mutually perpendicular will be

(a) $i = 45^\circ$

(b) $i = \sin^{-1}(\mu)$

(c) $i = \text{cosec}^{-1}(\mu)$

(d) $i = \tan^{-1}(\mu)$

19. According to laws of reflection of light

(a) Angle of incidence is equal to the angle of reflection

(b) Angle of incidence is less than the angle of reflection

(c) Angle of incidence is greater than the angle of reflection

(d) None of these

20. Convergence of concave mirror can be decreased by dipping in

(a) Water

(b) Oil

(c) Both

(d) None of these

21. A concave mirror of focal length f (in air) is immersed in water $(\mu = 4/3)$. The focal length of the mirror in water will be-

(a) f

(b) $\frac{4}{3}f$

(c) $\frac{3}{4}f$

(d) $\frac{7}{3}f$

22. According to the new cartesian sign convention, the ..... is taken as origin.

(a) centre of curvature

(b) pole of the mirror

(c) focus

(d) any point on the principal axis

23. Centre of curvature of a concave mirror lies ..... .

(a) behind it

(b) in front of it

(c) in its centre

(d) none

24. If angle of deviation through a prism of angle 60° is 40°, angle of incidence (being equal to angle emergence) would be:

(a) 50°

(b) 60°

(c) 40°

(d) None of these

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. When a few drops of liquid X were added to distilled water. It was observed that the pH of water decreased. The liquid sample X is:
(a) acid
(b) base
(c) salt
(d) mixture of salt and acid

26. Which of the following pair is not correct?

	Acid	**Example**
(a)	Monobasic acid	HNO_3
(b)	Dibasic acid	H_3PO_3
(c)	Tribasic acid	H_3PO_4
(d)	Monobasic acid	H_2SO_4

27. Alloys are homogeneous mixtures of a metal with a metal or non-metal.
Which among the following alloys contain non-metal as one of its constituents?
(a) Brass (b) Bronze
(c) Amalgam (d) Steel

28. Reacting with water, a metal produces
(a) oxygen (b) a base
(c) nitric acid (d) water

29. The pH of a solution is 4.5. What should be the change in the hydrogen ion concentration of the solution, if its pH is to increased to 6.
(a) increases by 10 times
(b) doubled
(c) halved
(d) decreases to 1/10 of its original concentration

30. Which of the following statements is/are correct for metals?
1. They react with oxygen to form metal oxides.
2. All metallic oxides are basic in nature.
3. Metals are reducing agents.
(a) 1 and 2 (b) 2 and 3
(c) 1 and 3 (d) 1, 2 and 3

31. **Assertion :** Salts are the products of an acid-base reaction.
Reason : Salt may be acidic or basic.
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Assertion is false but Reason is true.

32. **Assertion :** Decomposition reactions are similar to combination reactions.
Reason : Both reactions need a catalyst to occur.
(a) Both Assertion and Reason are True and Reason is the correct explanation of the Assertion.
(b) Both Assertion and Reason are True but Reason is not the Correct explanation of the Assertion.
(c) Assertion is True but the Reason is False.
(d) Both Assertion and Reason are False.

33. **Assertion :** Dark phase reactions take place at night.
Reason : Dark phase is independent of light, hence, called light independent phase.
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Both Assertion and Reason are false.

34. **Assertion :** Refractive indices of all transparent mediums are more than 1 (except air).
Reason : Air is the rarest medium.
(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) Assertion is true but Reason is false.
(d) Both Assertion and Reason are false.

35. Which among the following is not a base?
(a) NaOH (b) KOH
(c) NH_4OH (d) C_2H_5OH

36. Which of the following is not a physical change?
(a) Boiling of water to give water vapour
(b) Melting or ice to give water
(c) Dissolution of salt in water
(d) Combustion of Liquefied Petroleum Gas (LPG)

37. Structural and functional unit of kidney is?
(a) Hilum (b) Renal pelvis
(c) Nephron (d) Nephridia

38. Each kidney has large numbers of filtration units which is called ___
(a) Nephrons (b) Glomerulus
(c) Renal vein (d) None of the above

39. A thin layer of water is transparent but a very thick layer of water is:

(a) translucent (b) opaque

(c) most transparent (d) none of these

40. A child standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top.

(a) Plane, convex and concave

(b) Convex, concave and plane

(c) Concave, plane and convex

(d) Convex, plane and concave

41. When the materials like sucrose are transferred to phloem tissue, the osmotic pressure of the tissue ..... leading to ..... of water into/from it.

(a) Increases, entry (b) Decreases, entry

(c) Increases, exit (d) Decreases, exit

42. Many-plant waste products are stored in:

(a) Chloroplast (b) Mitochondria

(c) Cellular vacuoles (d) Cytoplasm

43. Convergence of concave mirror can be decreased by dipping in

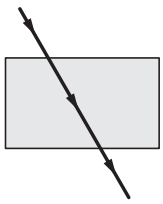
(a) Water

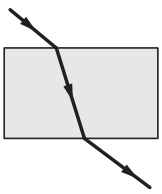
(b) Oil

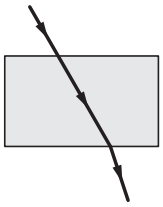
(c) Both

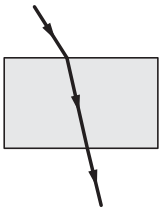
(d) None of these

44. The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown in figure. Which one of them is correct?

(a) 

(b) 

(c) 

(d) 

45. With respect to air, the refractive index of ice is 1.31 and that of rock salt is 1.54. the refractive index of rock salt with respect to ice is-

(a) 1.25 (b) 1.18

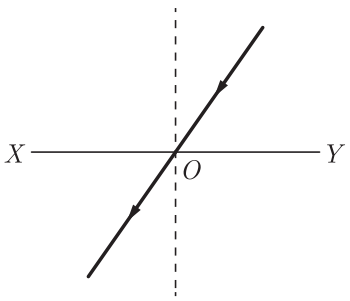
(c) 1.90 (d) 1.40

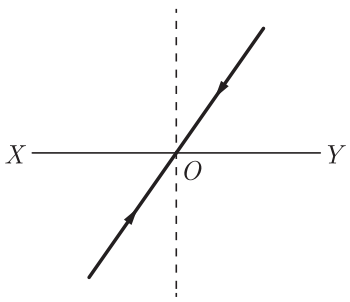
46. The refractive index of a medium 'x' with respect to 'y' is $\frac{2}{3}$ and the refractive index of medium 'y' with respect to 'z' is $\frac{4}{3}$. The refractive index of medium 'z' with respect of 'x' is-

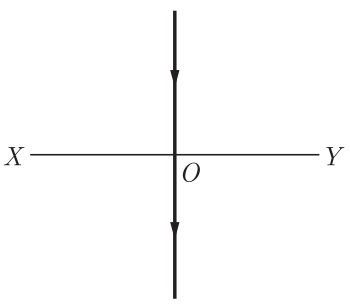
(a) $\frac{2}{9}$ (b) $\frac{9}{8}$

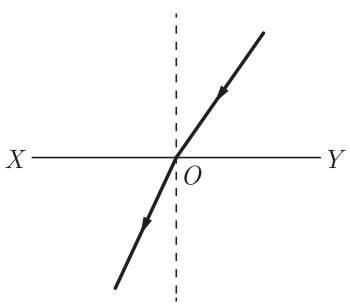
(c) $\frac{1}{3}$ (d) $\frac{5}{6}$

47. No refraction occurs at the boundary that separates two media of equal refractive indices. Which of the following figures shows such type of refraction?

(a) 

(b) 

(c) 

(d) 

48. Generally, metals are solid in nature. Which one of the following metals is found in liquid state at room temperature?

(a) Na (b) Fe

(c) Cr (d) Hg

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 Based Questions: (49-52)

Chemical reactions involve the breaking and making of bonds between atoms to produce new substances. During a chemical reaction atoms of one element do not change into those of another element. Nor do, atoms disappear from the mixture or appear from elsewhere. There are certain types of reactions. Reactions in which a single product is formed from two or more reactants is known as a combination reactions.
Decomposition reactions are the reaction in which a compound breaks down into simpler compounds.
Displacement and double displacement reactions are one in which an atom or group of atom is replaced by another. A double displacement reaction usually occurs in solution and one of products, being insoluble, percipitate out (separate as a solid). Another of reaction is redox reactions in which simultaneous oxidation and reduction takes place.

49. Which of the following reactions involved the combination of two element?
(a) $CaO + CO_2 \longrightarrow CaCO_2$
(b) $4Na + O_2 \longrightarrow 2Na_2O$
(c) $SO_2 + \frac{1}{2}O_2 \longrightarrow SO_3$
(d) $NH_3 + HCl \longrightarrow NH_4Cl$

50. Consider the reaction
$Fe_2O_3 + 2Al \longrightarrow Al_2O_3 + 2Fe$
The above reaction is an example of
(a) combination reaction
(b) double displacement reaction
(c) decomposition reaction
(d) simple displacement reaction

51. The equation,
$Mg(s) + CuO(s) \longrightarrow MgO(s) + Cu(s)$
represents
I. decomposition reaction
II. displacement reaction
III. combination reaction
IV. double displacement reaction
V. redox reaction
(a) I and II (b) III and IV
(c) II and V (d) IV and V

52. Which of the following is a decomposition reaction?
(a) $2HgO \xrightarrow{\text{Heat}} 2Hg + O_2$
(b) $CaCO_3 \xrightarrow{\text{Heat}} CaO + CO_2$
(c) $2HgO \xrightarrow{\text{Electrolysis}} H_2 + O_2$
(d) All of the above

Case Based Questions: (53-56)

When food enters the mouth, the first enzyme of mix with food in the digestive tract is the salivary amylase commonly known as ptyalin. This enzyme breaks starch into sugars. When food reaches the stomach, the muscular walls of the stomach help in mixing the food thoroughly with digestive juices. Gastric glands release HCl, protein digesting enzyme pepsin and mucus which further protects the inner lining of the stomach from the action of the acid under normal conditions.
From the stomach food enters the small intestine which is the site of complete digestion of carbohydrates, proteins and fats, It receives the secretions of the liver and pancreas for this purpose. The food coming from the stomach is acidic and has to be made alkaline for the pancreatic enzymes to act. Bile juice from the liver accomplishes this in addition to acting on fats.

53. Which is the first enzyme of mix with food in the digestive tract?
(a) Pepsin (b) Cellulose
(c) Amylase (d) Trypsin

54. If salivary amylase is lacking in the saliva, which of the following events in the mouth cavity 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

55. The inner lining of stomach is protected by one of the following from hydrochloric acid. Choose the correct one:
(a) Pepsin (b) Mucus
(c) Salivary amylase (d) Bile

56. Which part of alimentary canal receives bile from the liver?
(a) Stomach (b) Small intestine
(c) Large intestine (d) Oesophagus

Case Based Questions: (57-60)

When light is passed through a prism it spit into. Its spectrum of colours (in order violet, indigo, blue, green, yellow, orange and red) and this process of while light. Splitting into its constituent colours intermed as dispersion of light.
This splitting of the light ray occurs because of the different angles of bending for each colour. Hence, each colour while passing through the prism bends at different angles with respect to the incident beam. This gives rise to the formation of the coloured spectrum.

57. Which of the following colour of white light suffers least deviation?

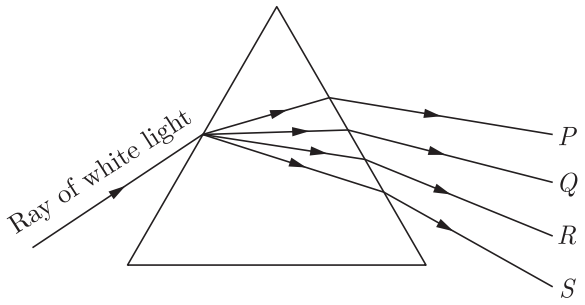
(a) Red

(b) Blue

(c) Violet

(d) Green

58. Which of the following colours viz., P, Q, R and S has more speed in the prism?



(a) P

(b) Q

(c) R

(d) S

59. Among the seven colours visible due to splitting of white light through prism which colour has shortest wavelength?

(a) Red

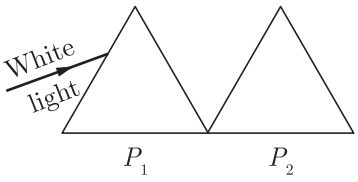
(b) Violet

(c) Yellow

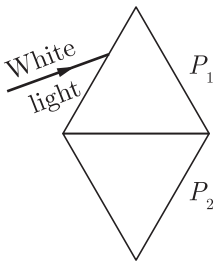
(d) Blue

60. How will you use two identical prisms P_1 and P_2 so that a narrow beam of white light incident on one prism emerges out of the second prism as white light?

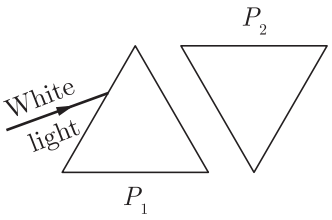
(a)



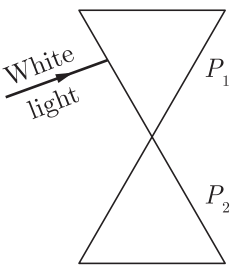
(b)



(c)



(d)



SAMPLE PAPER - 30 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1.	(c)	Ch-1	80
2.	(b)	Ch-2	49
3.	(b)	Ch-3	70
4.	(b)	Ch-1	77
5.	(d)	Ch-2	55
6.	(a)	Ch-1	96
7.	(d)	Ch-1	1
8.	(d)	Ch-2	53
9.	(b)	Ch-2	131
10.	(a)	Ch-1	73
11.	(c)	Ch-4	205
12	(d)	Ch-4	62
13	(c)	Ch-4	29
14	(c)	Ch-4	138
15	(a)	Ch-4	154
16	(b)	Ch-4	156
17	(b)	Ch-5	67
18	(d)	Ch-5	175
19	(a)	Ch-5	61
20	(d)	Ch-5	62
21	(a)	Ch-5	64
22	(b)	Ch-5	New
23	(b)	Ch-5	New
24	(a)	Ch-6	22
25	(a)	Ch-2	115
26	(d)	Ch-2	130
27	(d)	Ch-3	73
28	(b)	Ch-3	48
29	(d)	Ch-2	148
30	(c)	Ch-3	114
31	(b)	Ch-2	168

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(d)	Ch-1	158
33	(c)	Ch-4	231
34	(a)	Ch-5	181
35	(d)	Ch-2	27
36	(d)	Ch-1	60
37	(c)	Ch-4	117
38	(a)	Ch-4	132
39	(a)	Ch-5	59
40	(c)	Ch-5	57
41	(a)	Ch-4	147
42	(c)	Ch-4	163
43	(d)	Ch-5	62
44	(b)	Ch-5	54
45	(b)	Ch-5	30
46	(b)	Ch-5	31
47	(a)	Ch-5	94
48	(d)	Ch-3	14
49	(b)	Ch-3	New
50	(d)	Ch-3	New
51	(c)	Ch-3	New
52	(d)	Ch-3	New
53	(c)	Ch-4	New
54	(b)	Ch-4	New
55	(b)	Ch-4	New
56	(b)	Ch-4	New
57	(a)	Ch-5	92
58	(a)	Ch-5	93
59	(b)	Ch-5	94
60	(c)	Ch-5	95