Sample/Pre-Board Paper 20

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. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is $SO_2 + 2H_2S \rightarrow 2H_2O + 3S$.
Here hydrogen sulphide is acting as:
(a) an oxidising agent (b) a reducing agent
(c) a dehydrating agent (d) a catalyst

2. An acid (P) with sodium hydrogen carbonate is used in making the cakes fluffy and spongy. It is due to the release of (Q) gas in the reaction. Here, P and Q are
(a) P : Tartaric acid : Q : CO_2
(b) P : Succinic acid : Q : H_2
(c) P : Tartaric acid : Q : O_2
(d) P : Oxalic acid : Q : CO_2

3. What is/are true for ionic compounds?
1. They are solids.
2. They have low melting and boiling points.
3. They are soluble in water.
4. They are good conductors of electricity.

(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 1, 3 and 4 (d) 2, 3 and 4

4. Which one of the following is the example of oxidation?
(a) $2Mg(s) + O_2(g) \xrightarrow{\text{Burning}} 2MgO(s)$
(b) $CuO(s) + H_2(g) \xrightarrow{\text{Heat}} Cu(s) + H_2O(g)$
(c) $Fe_2O_3(s) + 2Al(s) \longrightarrow Al_2O_3(s) + 2Fe(s)$
(d) None of these

5. Which of the following phenomena occur, when a small amount of acid is added to water?
1. Ionization
2. Neutralization
3. Dilution
4. Salt formation

(a) 1 and 2 (b) 1 and 3
(c) 2 and 3 (d) 2 and 4

6. Which of the following reaction shows the change in colour?
(a) $Cu + 2AgNO_3 \longrightarrow Cu(NO_3)_2 + 2Ag$
(b) $NaOH + HCl \longrightarrow NaCl + H_2O + Heat$
(c) $Pb(NO_3)_2 + 2KI \longrightarrow PbI_2 + 2KNO_3$
(d) None of these.

7. When potassium iodine solution is added to a solution of lead nitrate ..... reaction occurs.
(a) combination (b) decomposition
(c) displacement (d) redox

8. Mixing of an acid or base with water is known as ..... .
(a) dilution (b) neutralisation
(c) indicators (d) offertory inductors

9. Which of the following is the synthetic indicator?
(a) Methyl orange
(b) Phenolphthalein
(c) China rose
(d) Both (a) and (b)

10. What happens when copper rod is dipped in iron sulphate solution?
(a) Copper displaces iron
(b) Blue colour of copper sulphate solution is obtained
(c) No reaction takes place
(d) Reaction is exothermic

11. Choose the forms in which most plants absorb nitrogen:
1. Atmospheric nitrogen
2. Proteins
3. Nitrates and nitrites
4. Urea

Choose the correct option.
(a) 1 and 4 (b) 3 and 4
(c) 1 and 2 (d) 2 and 3

12. Organisms which derive nutrition from plants or animals without killing them are
(a) Ticks (b) Yeast
(c) Mushroom (d) Fungi

13. The uptake of food and of oxygen in body is done with the help of:
(a) Specialized tissues (b) Specialized cells
(c) Multiple organs (d) None of the above

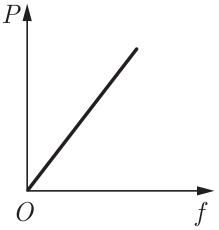
14. The yellow colour of urine is due to the presence of which of the following?
(a) Salt (b) Glucose
(c) Urochrome (d) Protein

15. By which cell the process of opening and closing of stomata is controlled?
(a) Epidermal Cell
(b) Guard Cell
(c) Accessory Cell
(d) Leaf Cell

16. Blood cell without nucleus are
(a) white blood corpuscles
(b) blood platelets
(c) red blood corpuscles
(d) none of these

17. In a convex mirror, focus (F) and centre of curvature (C) of the mirror lie
(a) behind the mirror
(b) in front of the mirror
(c) on the mirror
(d) nothing can be decided

18. Which of the following graphs shows correct variation between the power (P) of a converging lens and its focal length (f)?

(a)


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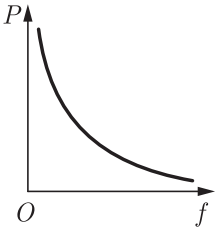

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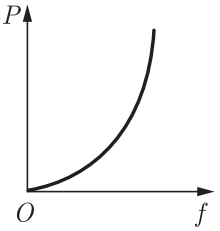

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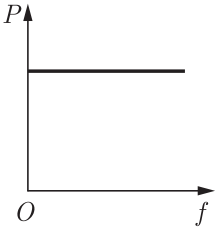
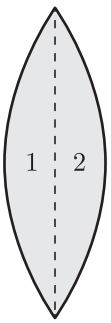


19. What is the power of a concave lens whose focal length is $-75.0\ \text{cm}$?
(a) 1.33 D (b) $-13.3\ \text{D}$
(c) 13.3 D (d) $-1.33\ \text{D}$

20. An object is immersed in a fluid. In order that the object becomes invisible, it should
(a) have refractive index one
(b) absorb all light falling on it
(c) behave as a perfect reflector
(d) have refractive index exactly matching with that of the surrounding fluid

21. The velocity of light in vacuum can be changed by changing
(a) amplitude (b) frequency
(c) wavelength (d) medium

22. A convex lens has a focal length f. It is cut into two parts along the dotted line as shown in the figure. The focal length of each part will be



(a) $\frac{f}{2}$ (b) f
(c) $\frac{3f}{2}$ (d) $2f$

23. A combination of a concave and convex lens has power $5\,D$. If the power of convex lens is $4\,D$, then focal length of the concave lens is
(a) 10 cm (b) 20 cm
(c) 100 cm (d) 200 cm

24. Twinkling of stars is due to atmospheric
(a) dispersion of light by water droplets
(b) refraction of light by different layers of varying refractive indices
(c) scattering of light by dust particles
(d) internal reflection of light by clouds

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. Which of the following acid is present in the vinegar?
(a) Acetic acid (b) Tartaric acid
(c) Lactic acid (d) Citric acid

26. Which of the following is more acidic in nature?
(a) Baking soda (b) Lime water
(c) Lemon (d) Apple

27. Generally, non-metals are not lustrous. Which of the following non-metals is lustrous?
(a) Sulphur (b) Oxygen
(c) Nitrogen (d) Iodine

28. Which of the following statements are incorrect?
1. Non-metals possess the property of ductility and malleability
2. Non-metallic elements are brittle
3. Metals can produce ringing sound by striking
4. Melting points and boiling points of metals are low

(a) 1 and 2 (b) 1 and 3
(c) 1 and 4 (d) 2 and 3

29. Arrange the following in the increasing order of pH values.
A. NaOH solution
B. Blood
C. Lemon juice
D. Milk of magnesia
(a) C < B < D < A (b) A < B < C < D
(c) D < C < B < A (d) A < B < D < C

30. When zinc is added to a sodium of iron (II) sulphate than it would displace ..... from the solution
(a) Zinc (b) Sodium
(c) Iron (d) None of these

31. **Assertion :** When zinc is added to a solution of iron (II) sulphate, no change is observed.
Reason : Zinc is less reactive than iron.
(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 :** A chemical reaction becomes faster at higher temperatures.
Reason : At higher temperatures, molecular motion becomes more rapid.
(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 :** In woody plants, gaseous exchange occurs through lenticels.
Reason : Lenticels are specialised cells found along with stomata on the stem of woody plants.
(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.

34. **Assertion :** A ray incident along normal to the mirror retraces its path.
Reason : In reflection, angle of incidence is not equal to angle of reflection.
(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. Sodium carbonate is a basic salt because it is a salt of
(a) strong acid and strong base
(b) weak acid and weak base
(c) strong acid and weak base
(d) weak acid and strong base

36. Which of the following is the observations of the chemical reaction?

1. Change in state
2. Evolution of a gas
3. Change in colour
4. Change in temperature

(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 1, 3 and 4 (d) 1, 2, 3 and 4

37. A terrestrial animal must be able to .....?

(a) Excrete large amount of water
(b) Actively pump salts through skin
(c) Excrete large amount of salts in urine
(d) Conserve water

38. Which of the following helps in maximum transport of oxygen?

(a) Red blood corpuscles
(b) Platelets
(c) Plasma
(d) White blood corpuscles

39. The focal length of a lens of power $-2.0\,\mathrm{D}$ is-

(a) $-50\,\mathrm{cm}$ (b) 40 cm
(c) 50 cm (d) $-40\,\mathrm{cm}$

40. Two thin lenses of power $+3.5\,\mathrm{D}$ and $-2.5\,\mathrm{D}$ are placed in contact. The power of the lens combination is-

(a) $+1\,\mathrm{D}$
(b) $+1.5\,\mathrm{D}$
(c) $+2.5\,\mathrm{D}$
(d) $+2\,\mathrm{D}$

41. Blood consists of a fluid medium called ..... in which the cells are suspended.

(a) Plasma
(b) RBCs
(c) Platelets
(d) WBCs

42. Which part of blood helps in clotting?

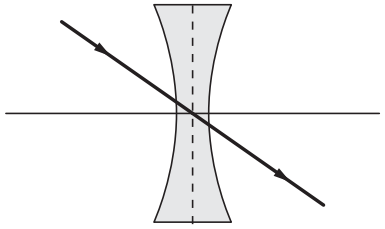
(a) WBCs
(b) RBCs
(c) Platelets
(d) Plasma

43. An object is situated at a distance of $f/2$ from a convex lens of focal length f. Distance of image will be

(a) $+(f/2)$
(b) $+(f/3)$
(c) $+(f/4)$
(d) $-f$

44. Which of the following correctly shows refraction of a ray of light from a concave lens?

(a)



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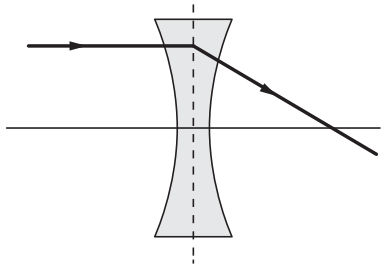

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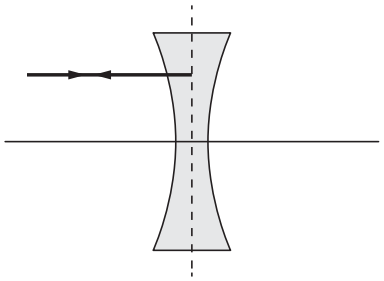

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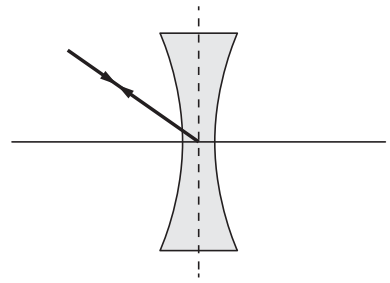


45. A concave lens of focal length 15 cm forms as image 10 cm from the lens. How far is the object placed from the lens?

(a) $-20\,\mathrm{cm}$ (b) 40 cm
(c) $-30\,\mathrm{cm}$ (d) $-40\,\mathrm{cm}$

46. Consider the following statements about refraction of light :

1. The incident ray, refracted ray and the normal ray lie in the same plane.
2. The angle of incidence is equal to the angle of refraction.

Choose the correct option from the codes given below:

(a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

47. A ray of light falls on a plane mirror making an angle of 30° with normal. On deviation, the ray of light deviates through an angle of

(a) 120° (b) 140°
(c) 160° (d) 180°

48. Iodine cannot be transformed into a wire because:
(a) It is brittle (b) It is lustrous
(c) Both (a) and (b) (d) None of above

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.

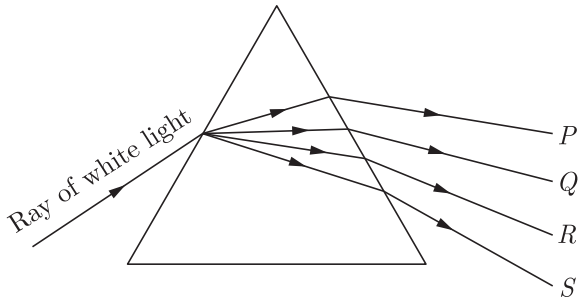
This splitting of the light ray occurs because of the different angles of bending for each colour. Hence, each colour while passing through the prism bends at different angles with respect to the incident beam. This gives rise to the formation of the coloured spectrum.

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

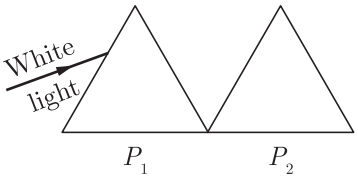
59. Among the seven colours visible due to splitting of white light through prism which colour has shortest wavelength?

(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)



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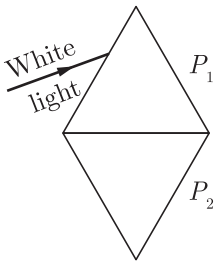

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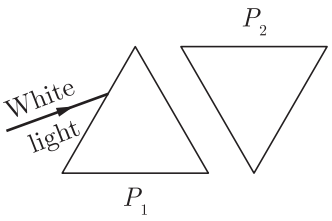
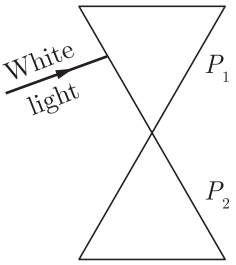


(d)



SAMPLE PAPER - 15 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(b)	Ch-1	140
2	(a)	Ch-2	147
3	(c)	Ch-3	117
4	(a)	Ch-1	34
5	(b)	Ch-2	20
6	(a)	Ch-1	110
7	(c)	Ch-1	102
8	(a)	Ch-2	113
9	(d)	Ch-2	82
10	(c)	Ch-1	137
11	(d)	Ch-4	170
12	(a)	Ch-4	46
13	(a)	Ch-4	14
14	(c)	Ch-4	108
15	(b)	Ch-4	107
16	(c)	Ch-4	106
17	(a)	Ch-5	93
18	(b)	Ch-5	115
19	(d)	Ch-5	136
20	(d)	Ch-5	146
21	(d)	Ch-5	149
22	(d)	Ch-5	169
23	(c)	Ch-5	166
24	(b)	Ch-6	6
25	(a)	Ch-2	80
26	(c)	Ch-2	76
27	(d)	Ch-3	68
28	(c)	Ch-3	21
29	(a)	Ch-2	117
30	(c)	Ch-3	87
31	(d)	Ch-3	152

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(a)	Ch-1	163
33	(c)	Ch-4	236
34	(c)	Ch-6	196
35	(d)	Ch-2	9
36	(d)	Ch-1	132
37	(d)	Ch-4	181
38	(a)	Ch-4	196
39	(a)	Ch-5	19
40	(a)	Ch-5	34
41	(a)	Ch-4	80
42	(c)	Ch-4	95
43	(d)	Ch-5	176
44	(a)	Ch-5	111
45	(c)	Ch-5	15
46	(a)	Ch-5	46
47	(a)	Ch-5	109
48	(a)	Ch-3	66
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