

Sample/Pre-Board Paper 19
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. A dilute solution of sodium carbonate was added to two test tubes - one containing dil HCl (A) and the other containing dilute NaOH(B). Which of the following was the correct observation?
- (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. You are having five solutions *P, Q, R, S* and *T* with pH values as follows:
P = 1.8, *Q* = 7, *R* = 8.5, *S* = 8 and *T* = 5
Which solution would be most likely to liberate hydrogen with magnesium powder?
- (a) Solution *P* and *Q*
 - (b) Solution *P*
 - (c) Solution *R*
 - (d) All of the above

3. Which of the following statements is/are correct for aqua regia?
1. It is a freshly prepared mixture of concentrated hydrochloric acid and concentrated nitric acid.
 2. Hydrochloric acid and nitric acid are in ratio 2:1
 3. It can dissolve gold.
- (a) 1 and 2
 - (b) 2 and 3
 - (c) 1 and 3
 - (d) 1, 2 and 3

4. What happens when dilute hydrochloric acid is added to iron fillings?
- (a) Hydrogen gas and iron chloride are produced.
 - (b) Chlorine gas and iron hydroxide are produced.
 - (c) No reaction takes place.
 - (d) Iron salt and water are produced.

5. To protect tooth decay we are advised to brush our teeth regularly. The nature of the toothpaste commonly used is

- (a) acidic
- (b) neutral
- (c) basic
- (d) corrosive

6. Which one of the following pair is correct?

	Reaction	Reaction Type
(a)	$2\text{KNO}_3(\text{s}) \rightarrow 2\text{KNO}_2(\text{s}) + \text{O}_2(\text{g})$	Displacement reaction
(b)	$\text{Zn}(\text{s}) + 2\text{AgNO}_3(\text{aq}) \rightarrow \text{Zn}(\text{NO}_3)_2 + 2\text{Ag}(\text{s})$	Combination reaction
(c)	$\text{Ni}(\text{NO}_3)_2(\text{aq}) + 2\text{NaOH} \rightarrow \text{Ni}(\text{OH})_2 \downarrow + 2\text{NaNO}_3(\text{aq})$	Double displacement reaction and precipitation reaction
(d)	$\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$	Decomposition reaction

7. Which of the following is the factor of influence the corrosion?
- (a) Reactivity of metals
 - (b) Presence of impurities
 - (c) Strain in the metal
 - (d) All of the above

8. When acid and base is mixed together than which of the following is formed?
- (a) Salt
 - (b) Base
 - (c) Acid
 - (d) Hydrogen

9. Which of the following is not an acid?
- (a) KOH
 - (b) HNO_3
 - (c) HCl
 - (d) H_2SO_4

10. Which of the following are correctly matched?

	Symbol	State
1.	Aq	soluble in alcohol
2.	l	liquid
3.	s	solid

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

11. In photosynthesis, which substances are used up, which are produced and which are necessary, but remain unchanged after the reaction?

	Used up	Produced	Remain Unchanged
(a)	Water	Oxygen	Chlorophyll
(b)	Oxygen	Starch	Cellulose
(c)	C a r b o n dioxide	Water	Oxygen
(d)	Chlorophyll	C a r b o n dioxide	Water

12. Organism who break down the food outside their body are

- (a) Fungi (b) Virus
(c) Tape worm (d) None of the above

13. In multi-cellular organisms, various body parts have specialized in the functions they perform with the help of:

- (a) Specialized cells
(b) Multiple organs
(c) Multiple structure
(d) Specialized tissues

14. The number of chambers in a human heart is

- (a) 3 (b) 2
(c) 4 (d) 5

15. The colour of blood plasma is:

- (a) Red (b) Pale yellow
(c) Yellowish green (d) Pink

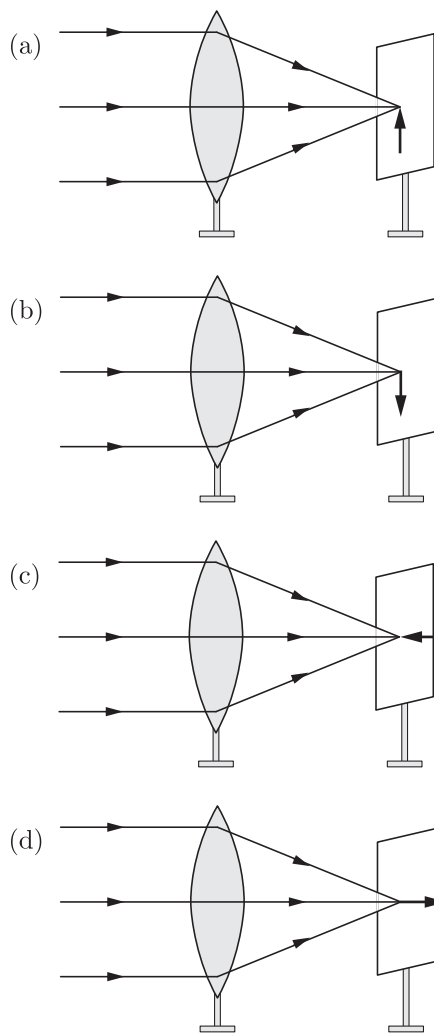
16. The shape of guard cells changes due to change in the

- (a) Protein composition of cells
(b) Temperature of cells
(c) Amount of water in cells
(d) Position of nucleus in the cells

17. A lens of focal power 0.5 D is:

- (a) A convex lens of focal length 0.5 m
(b) A concave lens of focal length 0.5 m
(c) A convex lens of focal length 2 m
(d) A concave lens of focal length 2 m

18. Parallel rays from a distant object incident on a convex lens form an image on the screen. The diagram showing correctly the image of the object on the screen in figure is :



19. If the rays constituting the beam actually meet at a point or appear to meet at a point, then the beam is:

- (a) divergent (b) convergent
(c) parallel (d) equal

20. If a glass rod is immersed in a liquid of the same refractive index, then it will

- (a) disappear (b) look bent
(c) look longer (d) look shorter

21. Light appears to travel in a straight line, because

- (a) frequency of light is very small
(b) wavelength of light is very small
(c) light consists of very small particles
(d) velocity is different for different colours

22. If two lenses of power 2 D and 3 D are kept in contact with each other, then focal length of the combination will be

- (a) 5 cm (b) 10 cm
(c) 20 cm (d) 40 cm

23. The projection lens of a projector has focal length 5 cm. It is desired to get an image with a magnification 30. The distance of the screen from the lens must be
 (a) 0.3 m (b) 0.8 m
 (c) 1.55 m (d) 2.55 m
24. Consider the following statements about dispersion by glass prism :

1. Splitting of light into its component colours is called dispersion.
 2. Issac Newton was the first to observe dispersion.
 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

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. pH of different solution are given in the table below.

Solution	pH
A	2.4
B	14.0
C	7.5
D	9.0

Arrange the above solution in the increasing order of OH^- ion concentration.

- (a) $D < C < B < A$ (b) $A < C < D < B$
 (c) $C < D < B < A$ (d) $B < D < C < A$

26. In an experiment of pH paper four students takes the following observation?

Student	Sample	pH paper colour
A	Water	Blue
B	Dilute HCl	Red
C	Dilute NaOH	Blue
D	Dilute Ethanoic acid	Orange

Which student takes the incorrect observation?

- (a) B (b) C
 (c) D (d) A

27. A student mistakenly used a wet gas jar to collect sulphur dioxide. Which one of the following tests of the gas is likely to fail?

- (a) Odour
 (b) Effect on acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution
 (c) Solubility test
 (d) None of these

28. The ability of metals to be drawn into thin wire is known as

- (a) Ductility (b) Malleability
 (c) Sonority (d) Conductivity

29. Hard water is not available for an experiment in the school and its vicinity. However, some salts as given below are available in the school laboratory.

- Sodium Chloride
- Sodium Sulphate
- Calcium Chloride
- Calcium Sulphate
- Potassium Chloride
- Magnesium Sulphate

Select form the following a group of these salts, each member of which may be dissolved in water to make it hard.

- (a) 1, 2, 5 (b) 1, 3, 5
 (c) 3, 4, 6 (d) 2, 4, 6

30. When dilute hydrochloric acid is added to a reactive metal gas is evolved.

- (a) Hydrogen
 (b) Argon
 (c) Helium
 (d) Nitrogen

31. **Assertion :** Electrical wires can be made by copper.

Reason : Copper is a good conductor of electricity.

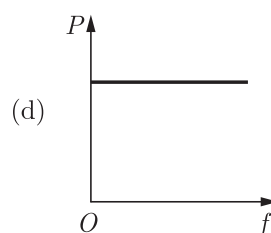
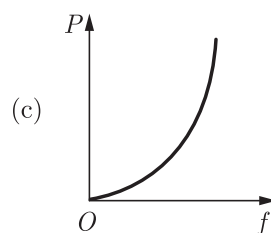
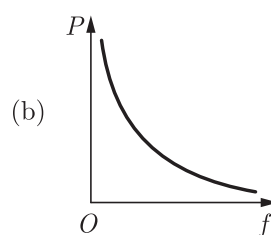
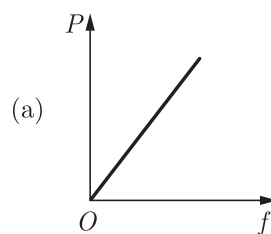
- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Assertion is false but Reason is true.

32. **Assertion :** Carbon dioxide turns lime water milky.

Reason : Carbon dioxide sullies the water.

- (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 :** Respiration is not a biochemical process opposite to photosynthesis.
Reason : Energy is released during respiration.
 (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 :** Large concave mirrors are used to concentrate sunlight to produce heat in solar cookers.
Reason : Concave mirror converges the light rays falling on it to a point.
 (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 of the following salts does not contain water of crystallization?
 (a) Blue vitriol (b) Baking soda
 (c) Washing soda (d) Gypsum
- 36.** Rusting of iron can be prevented by:
 1. Painting
 2. Galvanisation
 3. Electrolytic refining
 4. Alloying
 Which of the above are correct?
 (a) 1, 2 and 3 (b) 1, 2 and 4
 (c) 2, 3 and 4 (d) 1, 2, 3 and 4
- 37.** What happens if a person has one kidney removed?
 (a) They will accumulate excess urea
 (b) They will die
 (c) They will continue as normal
 (d) They will stop making urine
- 38.** Tricuspid valve is present in ?
 (a) Right atrium and right ventricle
 (b) Left atria and left ventricle
 (c) Wall of atrium
 (d) Wall of ventricle
- 39.** An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focussed image can be obtained?
 (a) 54 cm
 (b) 60 cm
 (c) - 54 cm
 (d) - 60 cm
- 40.** When light enters from air to glass, the angles of incidence and refraction in air and glass are 45° and 30° respectively. The refractive index of glass is
 (Given that $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 30^\circ = \frac{1}{2}$)
 (a) 1.90 (b) 1.41
 (c) 1.20 (d) 1.55
- 41.** What type of tissue is blood?
 (a) muscle tissue (b) nervous tissue
 (c) fluid connective tissue (d) epithelial tissue
- 42.** Arteries are the vessels which carry blood away from the
 (a) Various body parts to the heart
 (b) Heart to various organs of the body
 (c) Heart to lungs
 (d) Lungs to heart
- 43.** 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) $i = \operatorname{cosec}^{-1}(\mu)$ (d) $i = \tan^{-1}(\mu)$
- 44.** Which of the following graphs shows correct variation between the power (P) of a converging lens and its focal length (f)?



45. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?
- A convex lens of focal length 50 cm.
 - A convex lens of focal length 5 cm.
 - A convex lens of focal length 5 cm.
 - A concave lens of focal length 5 cm.

46. Which of the following are correctly matched for the concave mirror?

	Object	Image
1.	Between P and F	at infinity
2.	At C	at C
3.	Beyond C	between F and C
4.	At infinity	at focus

Choose the correct option from the codes given below :

- 1, 3, 4
- 2, 3, 4
- 1, 2, 3
- 1, 2, 3, 4

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

48. Melting of iron occurs at temperature than sulphur.
- Lower
 - Higher
 - Equal
 - None of the above

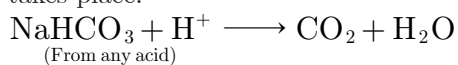
Section C

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)

For making baking powder, which is a mixture of baking soda (sodium hydrogen carbonate) and a mild edible acid such as tartaric acid. When baking powder is heated or mixed in water, the following reaction takes place:



+ Sodium salt of acid

Carbon dioxide produced during the reaction causes bread or cake to rise making them soft and spongy.

Sodium hydrogen carbonate is also an ingredient in antacids. Being alkaline, it neutralises excess acid in the stomach and provides relief.

It is also used in soda-acid fire extinguishers.

49. Which of the following compound is used in soda-acid fire extinguishers?
- Plaster of Paris
 - Baking soda
 - Washing soda
 - Bleaching powder
50. is the chemical name of baking soda.
- Calcium hydrogen carbonate
 - Sodium hydrogen carbonate
 - Calcium carbonate
 - Sodium carbonate
51. Baking powder is a mixture of the following compounds:
- Bleaching powder and citric acid
 - Baking soda and oxalic acid
 - Washing soda and citric acid
 - Baking soda and tartaric acid

52. Which ingredient is used in anti-acids which gives relief in stomach by neutralising excess acid?
- Magnesium hydroxide
 - Sodium carbonate
 - Aluminium hydroxide
 - Sodium hydrogen carbonate

Case Based Questions: (53-56)

The length of the small intestine differs in various animals depending on the food they eat. Herbivores eating grass need a longer small intestine to allow the cellulose to be digested. Meat is easier to digest, hence carnivores like tigers have a shorter small intestine.

The small intestine is the site of the 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. Fats are present in the intestine in the form of large globules which makes it difficult for enzymes to act on them. Bile salts break them down into smaller globules increasing the efficiency of enzyme action.

53. Which category of animals have shorter small intestine?
- Carnivores
 - Omnivores
 - Herbivores
 - Decomposers



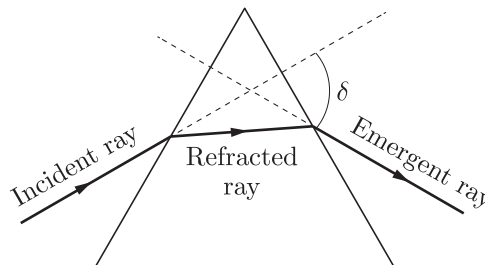
54. Why herbivores have longer small intestine?
- To digest fats
 - To digest proteins
 - To digest cellulose
 - To digest carbohydrates
55. The small intestine is the site of the complete digestion of:
- Carbohydrates
 - Proteins
 - Fats
 - All of these
56. What is the nature of food in the stomach and what is done for the pancreatic enzymes to act?
- Acidic, made more acidic
 - Alkaline, made acidic
 - Acidic, made alkaline
 - Alkaline, made more alkaline

Case Based Questions: (57-60)

Newton found that when a beam of white light passes through a prism it is spread out by the prism into a band of all the colours of the rainbow from red to violet. The band of colours is called a spectrum and the separation of the colours by the prism is known as dispersion. He concluded that white light is a mixture of light of various colours and identified red, orange, yellow, green, blue, indigo and violet. All colours of light travel at the same speed in a vacuum. When they enter a transparent substance like glass, they all slow down but by different amounts. Because they slow down, they are refracted but because they slow down by different amounts, different colours are refracted through different angles.

57. Which of the following statements is correct regarding the propagation of light of different colours of white light in air?
- Red light moves fastest.
 - Blue light travels faster than green light.
 - All colours of white light move with the same speed.
 - Yellow light moves with the mean speed as that of red and violet lights.

58. A ray of light passes through a prism as shown in figure



The angle δ is known as

- angle of emergence
 - angle of dispersion
 - angle of prism
 - angle of deviation
59. Splitting of white light into seven colours on passing through a glass prism is called
- scattering
 - refraction
 - dispersion
 - reflection
60. Rainbow is formed due to
- diffraction and dispersion
 - reflection only
 - scattering and refraction
 - total internal reflection and dispersion



SAMPLE PAPER - 14 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(c)	Ch-1	139
2	(b)	Ch-2	145
3	(c)	Ch-3	116
4	(a)	Ch-1	29
5	(c)	Ch-2	17
6	(c)	Ch-1	108
7	(d)	Ch-1	97
8	(a)	Ch-2	112
9	(a)	Ch-2	81
10	(b)	Ch-1	135
11	(a)	Ch-4	168
12	(a)	Ch-4	45
13	(d)	Ch-4	13
14	(c)	Ch-4	101
15	(b)	Ch-4	102
16	(c)	Ch-4	103
17	(c)	Ch-5	85
18	(b)	Ch-5	118
19	(b)	Ch-5	135
20	(a)	Ch-5	145
21	(b)	Ch-5	148
22	(c)	Ch-5	167
23	(c)	Ch-5	168
24	(c)	Ch-6	4
25	(b)	Ch-2	75
26	(d)	Ch-2	79
27	(d)	Ch-3	139
28	(a)	Ch-3	25
29	(d)	Ch-2	103
30	(a)	Ch-3	86
31	(a)	Ch-3	151

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(c)	Ch-1	162
33	(d)	Ch-4	235
34	(a)	Ch-6	195
35	(b)	Ch-2	8
36	(b)	Ch-1	129
37	(c)	Ch-4	180
38	(a)	Ch-4	195
39	(c)	Ch-5	18
40	(b)	Ch-5	33
41	(c)	Ch-4	79
42	(b)	Ch-4	94
43	(d)	Ch-5	175
44	(b)	Ch-5	115
45	(c)	Ch-5	14
46	(b)	Ch-5	47
47	(a)	Ch-5	108
48	(b)	Ch-3	65
49	(b)	Ch-3	228
50	(b)	Ch-3	229
51	(d)	Ch-3	230
52	(d)	Ch-3	231
53	(a)	Ch-4	New
54	(c)	Ch-4	New
55	(d)	Ch-4	New
56	(c)	Ch-4	New
57	(c)	Ch-5	87
58	(d)	Ch-5	88
59	(c)	Ch-5	89
60	(d)	Ch-5	90