Sample/Pre-Board Paper 22

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. Ethane (C_2H_6) on complete combustion gave CO_2 and water. It shows that the results are in accordance with the law of conservation of mass. Then, the coefficient of oxygen is equal to
(a) 7/2 (b) 3/2
(c) 5/2 (d) 9/2

2. A body wanted to remove the grease strain from our shirt. So he used a X solution. Here X solution is:
(a) Ammonium hydroxide
(b) Magnesium hydroxide
(c) Calcium hydroxide
(d) Sodium hydroxide

3. An element X (atomic number 12) reacts with another element Y (atomic number 17) to form a compound Z. Which of the following statements are true regarding this compound?
1. Molecular formula of Z is XY_2.
2. It is soluble in water.
3. X and Y are joined by sharing of electrons.
4. It would conduct electricity in the molten state.
(a) 2 and 3 (b) 1 and 2
(c) 1, 3 and 4 (d) 1, 2 and 4

4. $FeS + H_2SO_4 \longrightarrow FeSO_4 + H_2S \uparrow$.
In the above equation $\uparrow$ indicates:
(a) gas evolved
(b) insoluble substance formed
(c) reactive element
(d) element is not useful in chemical equation

5. Which of the following substances will not give carbon dioxide on treatment with dilute acid?
(a) Marble (b) Limestone
(c) Baking soda (d) Lime

6. Which of the following are correctly matched?

1.	Reactant	substance which undergoes change.
2.	Product	new substance
3.	Chemical reaction	simplest form

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

7. In a combination how many products are formed?
(a) one only
(b) two only
(c) one or two only
(d) number cannot be specified

8. Which of the following are correctly matched?

1.	Common salt	formed by sodium hydroxide and hydrochloric acid.
2.	Brine	aqueous solution of sodium chloride.
3.	Chlor-alkali process	formation of sodium chloride

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

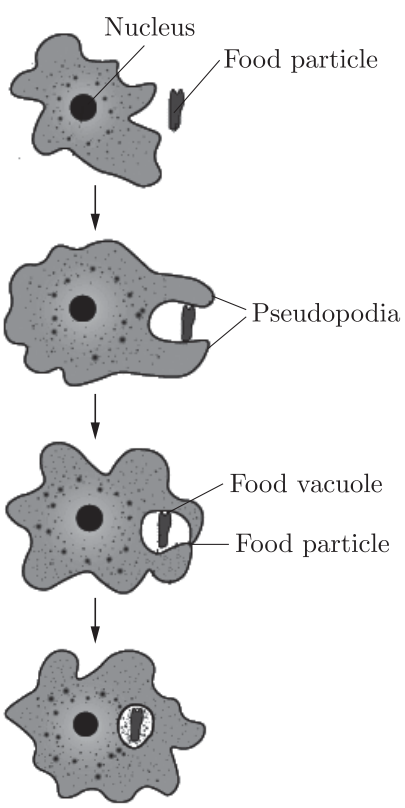
9. Which of the following substance have maximum value of pH?
(a) Lemon
(b) Rain water
(c) Sea water
(d) Apple

10. What happens when a piece of zinc metal is added to copper sulphate solution?
(a) Decomposition reaction
(b) Double displacement reaction
(c) Displacement reaction
(d) Precipitation reaction

11. Only two of the following Statements accurately describe what happens in the mouth.
1. Amylase breaks down large starch molecules into smaller maltose molecules.
2. Chewing increases the surface area of food for digestion.
3. Saliva emulsifies fats into smaller droplets.
4. Teeth breakup large insoluble molecules into smaller soluble molecules.

Which statements are correct?
(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 1 and 4

12. Identify the micro-organism whose nutrition type is shown below :



(a) Food bacteria (b) Yeast
(c) Fungus (d) Amoeba

13. The process by which all the by products discarded from the body is known as:
(a) Respiration (b) Sweating
(c) Excretion (d) None of the above

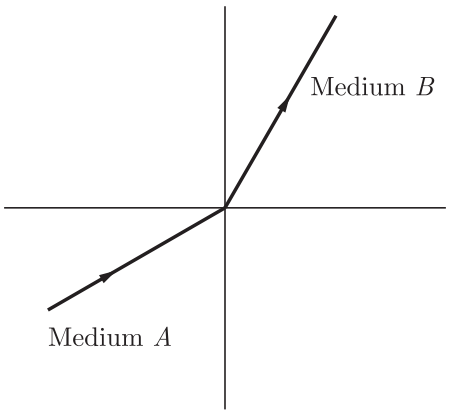
14. Which one of the following is attached to the right ventricle?
(a) Pulmonary artery (b) Pulmonary vein
(c) Inferior vena cava (d) Superior vena cava

15. Which one of the following is NOT present in urine?
(a) Water (b) Salts
(c) Urea (d) Salivary amylase

16. Which of the following is carried by lymph which is digested and absorbed from intestine?
(a) Fat (b) Protein
(c) Minerals (d) Carbohydrates

17. The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?
(a) Between the principal focus and the centre of curvature
(b) At the centre of curvature
(c) Beyond the centre of curvature
(d) Between the pole of the mirror and its principal focus.

18. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium A relative to B will be-



(a) greater than unity (b) less than unity
(c) equal to unity (d) zero

19. The radius of curvature of a spherical mirror is 20 cm. the focal length of mirror is
(a) 10 cm (b) 20 cm
(c) 30 cm (d) 40 cm

20. A concave mirror produces three times magnified (enlarged) real image of an object placed at 10 cm in front of it. Where is the image located?
(a) 30 cm (b) 40 cm
(c) -30 cm (d) -40 cm

21. Light enters from air to glass having refractive index 1.50. The speed of light in vacuum is 3×10^8 ms^{-1}. The speed of light in the glass is-
(a) $2 \times 10^8 \text{ms}^{-1}$
(b) $3 \times 10^8 \text{ms}^{-1}$
(c) $4 \times 10^4 \text{ms}^{-1}$
(d) $5 \times 10^5 \text{ms}^{-1}$

22. 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

23. In a spherical mirror, normal drawn on any point on a spherical mirror passes through :

(a) Focus (b) Pole of the mirror

(c) Centre of curvature (d) None of the above

24. Which of the following statements is correct regarding the propagation of light of different colours of white light in air?

(a) Red light moves fastest.

(b) Blue light moves faster than green light.

(c) All the colours of the white light move with the same speed.

(d) Yellow light moves with the mean speed as that of the red and the violet light.

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. 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

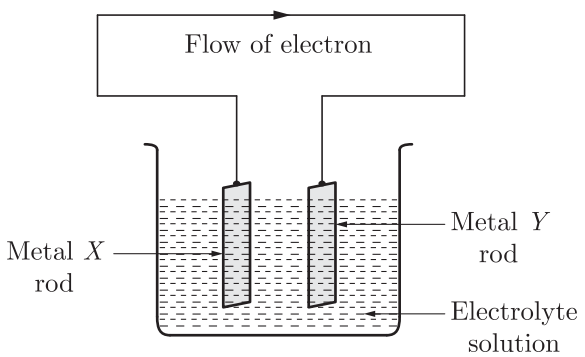
(c) D < C < B < A (d) A < B < D < C

26. A student takes about 6 ml of distilled water in each of the four test tubes A, B, C and D, then dissolves in equal amount four different salts name sodium chloride in A Potassium Chloride in B, Calcium Chloride in C and magnesium chloride in D. He then adds 10 drop of soap solution to each test tube and shakes its contents. The test tube(s) in which he would observe a good amount of lather is:

(a) A and B (b) Only A

(c) C and D (d) Only B

27. Mohit arranged two metal rods in electrolyte solution as shown in the figure and electron flows from metal X to metal Y.



Here, metal X and Y are-

(a) Copper, Zinc (b) Zinc, Silver

(c) Iron, Aluminium (d) Iron, Silver

28. An element has a dull appearance, low density, and low melting point. It could be a _____

(a) metal

(b) non-metal

(c) both (a) and (b)

(d) none of the abvoe

29. Which of the following is the correct for dilution of acid and base?

(a) Acid or base added to water.

(b) Water is added to acid or base.

(c) Water is added drop by drop to acid or base.

(d) Water cannot be added in acid or base.

30. Ionic compound have high melting point due to

(a) Strong force of attraction between oppositely charged ions.

(b) Less force of attraction between oppositely charged ions.

(c) Strong force of attraction between similar charged ions.

(d) None of these

31. **Assertion :** Active metals react with acids to liberate Hydrogen gas.

Reason : It is an example of displacement reaction.

(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.

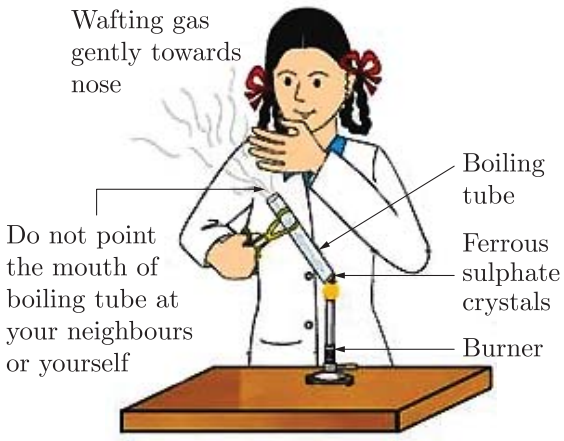
32. **Assertion :** Changing of colour of copper from reddish brown to black is an example of reduction.
Reason : Hydrogen is removed.
(a) Both Assertion and Reason are True and Reason is the correct explanation of the Assertion.
(b) Both Assertion and Reason are True but Reason is not the Correct explanation of the Assertion.
(c) Assertion is True but the Reason is False.
(d) Both Assertion and Reason are False.

33. **Assertion :** Interauricular septum separates left from right atrium.
Reason : Interventricular septum separates left from right ventricle.
(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 :** Planets do not twinkle.
Reason : Planets do not show the phenomenon of scattering.
(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 are used as an antacid to reduce acidity in stomach?
(a) Sodium carbonate and magnesium hydroxide
(b) Magnesium hydroxide and sodium hydroxide
(c) Sodium bicarbonate and calcium hydroxide
(d) Sodium bicarbonate and magnesium hydroxide

36. Sunita takes about 2 g ferrous sulphate crystals in dry boiling tube and heat the boiling tube over the flame of a burner or spirit lamp as shown in the figure.



The colour of crystals after heating is:
(a) Black (b) Brown
(c) Green (d) Orange

37. Which of the following is body's largest blood vessel?
(a) Heart (b) Capillaries
(c) Aorta (d) Pulmonary vein

38. Man is _____
(a) Ammonotelic (b) Ureotelic
(c) Uricotelic (d) None of the above

39. A 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. The location of the image is-
(a) 6.7 cm (b) 4.5 cm
(c) 9.2 cm (d) 5 cm

40. A student wants to project the image of a candle flame on a screen 80 cm in front of a mirror by keeping the candle flame at a distance of 20 cm from its pole. The magnification of the image produced is-
(a) -4 (b) -2
(c) -6 (d) -1

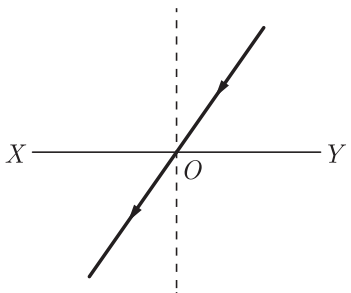
41. Which one of the following is not a function of kidney?
(a) Filtration (b) Oxidation
(c) Absorption (d) Secretion

42. ..... helps in trans location of food in plants.
(a) Xylem (b) Phloem
(c) Palisade cells (d) Root hairs

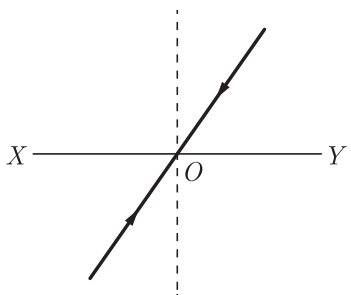
43. If the refractive indices for water and diamond relative to air are 1.33 and 2.4 respectively, then the refractive index of diamond relative to water is-
(a) .55 (b) 1.80
(c) 3.19 (d) None of these

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

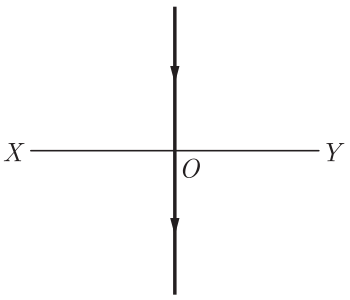
(a)



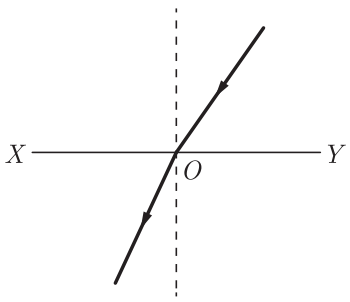
(b)



(c)



(d)



45. An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror or radius of curvature 30 cm. The position of the image is-

(a) 8.57 cm (b) 9.10 cm

(c) 8.15 cm (d) 7.15 cm

46. A convex lens has a focal length of 10 cm. At what distance from the lens should the object be placed so that it forms a real and inverted image 20 cm away from the lens?

(a) -20 cm (b) -40 cm

(c) -60 cm (d) -80 cm

47. A full length image of a distant tall building can definitely be seen by using

(a) a concave mirror

(b) a convex mirror

(c) a plane mirror

(d) both concave as well as plane mirror

48. Which of the following cannot be beaten into thin sheets?

(a) Sulphur (b) Aluminium

(c) Iron (d) Zinc

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)

Metals are elements that exhibit a variety of physical properties such as those of malleability, ductility, conductivity of heat and electricity, lustre, etc. Due to such properties, metals find usage in purpose such as cooking utensils, machinery, modes of transportation, construction, etc., in our daily life. Metals such as gold and silver have been used in making jewellery since ancient times. Non-metals have been found to exist in all the three states– solid, liquid and gaseous. They are non-malleable, non-ductile and brittle in nature. Non-metals have very low tensile strength and are easily broken up.

49. Which of the following metal(s) will have very low melting point?

(a) Gallium (b) Caesium

(c) Copper (d) Both (a) and (b)

50. The metal which is known as strategic metal is

(a) zirconium (b) titanium

(c) manganese (d) all of these

51. Metals can be given different shapes according to our needs because

(a) they are malleable and ductile

(b) they are sonorous

(c) they are generally hard

(d) they have a shining surface

52. Which of the following non-metal is a good conductor of electricity?

(a) Oxygen (b) Nitrogen

(c) Graphite (d) Bromine

Case Based Questions: (53-56)

They create by-products that art not only useless for the cells of the body, but could even be harmful. These waste by-products are therefore needed to be removed from the body and discarded outside by a process called excretion. Again, if the basic rules for body design in multi-cellular organisms are followed, a specialised tissue for excretion will be developed, which means that the transportation system will need to transport waste away from cells to this excretory tissue.

53. The excretory materials are temporarily stored in:
(a) Urethra (b) Kidneys
(c) Ureters (d) Urinary bladder

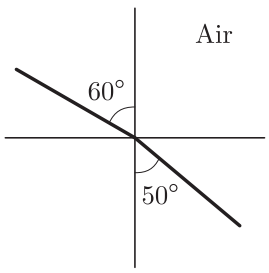
54. The main excretory by-product in human beings is
(a) Creatine (b) Urea
(c) Uric acid (d) None of the above

55. The process of removal of nitrogenous waste materials from the body is called ..... .
(a) Nutrition (b) Respiration
(c) Excretion (d) Transportation

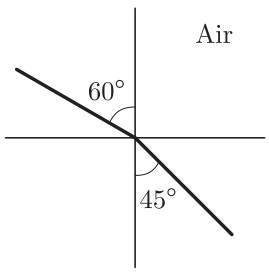
56. Which is the main excretory organ in human beings?
(a) Intestine (b) Kidneys
(c) Lungs (d) Heart

Case Based Questions: (57-60)

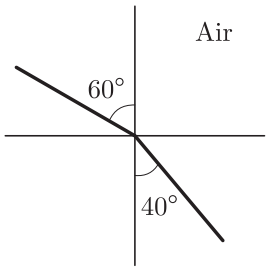
Mohan is performing an experiment with four different optical media, he traced the path of light in different media P, Q, R and S as below:



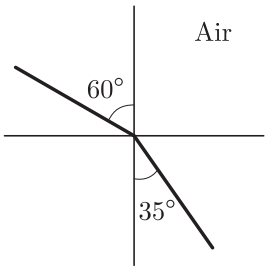
(P)



(Q)



(R)



(S)

57. When a light travel from medium P to S it will:
(a) reflect back to medium P
(b) pass straight without bending
(c) bend away from normal
(d) bend towards normal

58. Which of the following media has maximum optical density?
(a) P (b) R
(c) S (d) Q

59. Through which media, will speed of light be maximum?
(a) Q (b) R
(c) S (d) P

60. Absolute refractive index of medium is maximum in:
(a) P (b) Q
(c) R (d) S

SAMPLE PAPER - 17 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(a)	Ch-1	146
2	(a)	Ch-2	132
3	(d)	Ch-3	124
4	(a)	Ch-1	37
5	(d)	Ch-2	22
6	(a)	Ch-1	130
7	(a)	Ch-1	13
8	(a)	Ch-2	41
9	(c)	Ch-2	84
10	(c)	Ch-1	20
11	(a)	Ch-4	172
12	(d)	Ch-4	49
13	(c)	Ch-4	16
14	(a)	Ch-4	109
15	(d)	Ch-4	110
16	(a)	Ch-4	112
17	(d)	Ch-5	10
18	(b)	Ch-5	125
19	(a)	Ch-5	4
20	(c)	Ch-5	5
21	(a)	Ch-5	6
22	(a)	Ch-5	46
23	(c)	Ch-5	New
24	(c)	Ch-6	8
25	(a)	Ch-2	117
26	(a)	Ch-2	102
27	(b)	Ch-3	162
28	(c)	Ch-3	20
29	(a)	Ch-2	133
30	(a)	Ch-3	89
31	(a)	Ch-2	155

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(d)	Ch-1	148
33	(b)	Ch-4	238
34	(c)	Ch-6	55
35	(d)	Ch-2	46
36	(b)	Ch-1	168
37	(c)	Ch-4	104
38	(b)	Ch-4	119
39	(a)	Ch-5	38
40	(a)	Ch-5	37
41	(b)	Ch-4	134
42	(b)	Ch-4	149
43	(b)	Ch-5	178
44	(a)	Ch-5	109
45	(a)	Ch-5	17
46	(a)	Ch-5	44
47	(b)	Ch-5	81
48	(a)	Ch-3	61
49	(d)	Ch-3	178
50	(d)	Ch-3	179
51	(a)	Ch-3	180
52	(c)	Ch-3	181
53	(d)	Ch-4	248
54	(b)	Ch-4	249
55	(c)	Ch-4	250
56	(b)	Ch-4	251
57	(d)	Ch-5	100
58	(c)	Ch-5	101
59	(d)	Ch-5	102
60	(d)	Ch-5	103