Sample/Pre-Board Paper 32

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 chemical reactions in which one element takes the position or place of another element present in a compound are called ..... reaction.

(a) Decomposition

(b) Combination

(c) Precipitation

(d) Displacement

2. A solution in test tube 'A' turns red litmus blue, evolves hydrogen gas on reaction with zinc and does not react with sodium carbonate. Whereas, solution in test tube 'B' turns blue litmus red, liberates hydrogen gas on reaction with zinc and evolves carbon dioxide gas with sodium carbonate. Identify 'A' and 'B'.

(a) 'A' is an acid, 'B' is a base.

(b) 'A' is a base, 'B' is an acid.

(c) Both 'A' and 'B' are bases.

(d) Both 'A' and 'B' are acids.

3. A non-metal X exists in two different forms Y and Z. Y is the hardest natural substance, whereas Z is a good conductor of electricity. Here X, Y and Z are

	X	Y	Z
(a)	Carbon	Diamond	Graphite
(b)	Graphite	Diamond	Carbon
(c)	Carbon	Graphite	Diamond
(d)	Diamond	Graphite	Carbon

4. Which of the following is not a thermal decomposition reaction?

(a) $2KClO_3 \longrightarrow 2KCl + 3O_2$

(b) $ZnCO_3 \longrightarrow ZnO + CO_2$

(c) $2FeSO_4 \longrightarrow Fe_2O_3 + SO_2 + SO_3$

(d) $2H_2O \longrightarrow 2H_2 + O_2$

5. On washing with soap, a turmeric stain on the cloth turns to red because

1. Soap solution is alkaline.
2. Soap solution is acidic.
3. Turmeric contains a natural indicator.
4. Turmeric contains litmus.

Select the correct alternative.

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

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

6. Which of the following reaction is characterised by the yellow colour of product?

(a) $2Pb_3O_4 \xrightarrow{\Delta} 6PbO(s) + O_2(g)$

(b) $Zn(s) + H_2SO_4 \longrightarrow ZnSO_4 + H_2$

(c) $Na_2CO_3 + H_2SO_4 \longrightarrow Na_2SO_4 + H_2O + CO_2$

(d) $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2(g)$

7. 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)

8. 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

9. An acid produces ..... ions in water.

(a) Hydrogen (b) Helium

(c) OH^- (d) None of these

10. 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

11. Which of the following statements is true about Trachea in a respiratory system?
(a) It functions as passages of air to each alveolus
(b) It functions for sound production
(c) It Acts as passage of air to bronchi
(d) It Lowers the surface tension

12. The function of sphincter muscle is to
(a) Regulate digestive process
(b) Improves digestion
(c) Release digestive juices
(d) Regulate exit of food

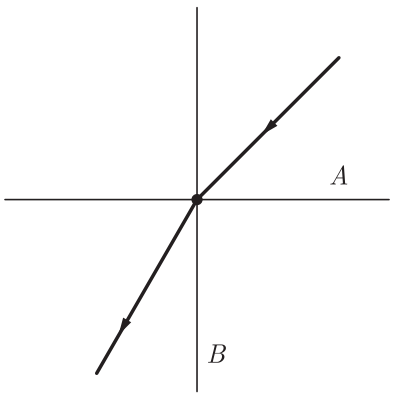
13. Autotrophic organism converts of carbon dioxide and water into carbohydrates in the presence of
(a) Sunlight and carbon dioxide
(b) Sunlight and chlorophyll
(c) Carbon dioxide and Nitrogen
(d) Chlorophyll and carbon dioxide

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

15. The effect of root pressure in transport of water is more important at
(a) day time (b) night time
(c) both (a) and (b) (d) none of these

16. The biological process involved in the removal of these harmful metabolic wastes from the body is called
(a) Photosynthesis (b) Respiration
(c) Excretion (d) Translocation

17. A ray of light is refracted as per the following diagram. Which of the following medium is optically denser?



(a) Medium A
(b) Medium B
(c) Cannot be identify
(d) Both medium are denser

18. The radius of curvature of concave mirror is 24 cm. Then, the focal length will be
(a) -12 cm (b) 6 cm
(c) -24 cm (d) -6 cm

19. The correct order of refractive index of various materials is :
(a) Diamond > Ice > Alcohol > Rock salt
(b) Ice > Diamond > Rock salt > Alcohol
(c) Diamond > Rock salt > Alcohol > Ice
(d) Rock salt > Alcohol > Ice > Diamond

20. A full length 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

21. In torches, search light and headlights of vehicles the bulb is placed
(a) Between the pole and 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

22. A point source of light is placed in front of a plane mirror, then :
(a) all the reflected rays will meet at a point when produced backward
(b) only the reflected rays close to the normal will meet at a point when produced backward
(c) only the reflected rays making a small angle with the mirror will meet at a point when produced backward
(d) light of different colours will make different images

23. A plane mirror reflects a beam of light to form a real image. The incident beam is :
(a) parallel
(b) convergent
(c) divergent
(d) any one of the above

24. Advanced sunrise and delayed sunset are explained on the basis of
(a) Tyndall effect
(b) scattering of light
(c) dispersion of light
(d) atmospheric refraction

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 statement is incorrect about acids?
(a) they change the colour of red litmus to blue
(b) they have sour taste
(c) they may change the colour of indicator
(d) they changes the colour or blue litmus to red

26. The hydroxyl ion concentration of a solution is 1.0×10^{-9} M. The pH of the solution is:
(a) 4 (b) 5
(c) 6 (d) 7

27. Generally metals react with acids to give salt and hydrogen gas.
Which of the following acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?
(a) H_2SO_4 (b) HCl
(c) HNO_3 (d) All of these

28. Which metals react with cold water?
(a) Iron, calcium, magnesium
(b) Iron, sodium, magnesium
(c) Sodium, calcium, potassium
(d) Silver, sodium, magnesium

29. Aqueous solution of copper sulphate reacts with aqueous ammonium hydroxide solution to give.
(a) green precipitate (b) brown precipitate
(c) pale blue precipitate (d) white precipitate

30. Two elements X and Y on burning in air give corresponding oxides. Oxides of both X and Y are soluble in water. The aqueous solution of oxide of X is alkaline and reacts with aqueous solution of oxide of Y to give another compound. Identify X and Y
(a) X and Y both are metals
(b) X and Y are non-metals
(c) X is metal and Y is non-metal
(d) X is non-metal and Y is metal

31. **Assertion :** HCl produces hydronium ions (H_3O^+) and chloride ions (Cl^-) in aqueous solution.
Reason : In presence of water, base give H^+ ions.
(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 :** Chips manufacturers usually flush bags of chips with oxygen gas.
Reason : It adds taste to chips.
(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 plants, water is transported through phloem.
Reason : It is because sieve tubes are absent in phloem.
(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 :** In case of rainbow, light at the inner surface of the water drop gets internally reflected.
Reason : The angle between the refracted ray and normal to the drop surface is greater than the critical angle.
(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.

35. Which of the following is acidic in nature?
(a) Lime juice (b) Human blood
(c) Lime water (d) Antacid

36. A reaction in which a single reactant breaks down to form two or more products is known as decomposition reaction. Decomposition reaction is just the opposite of combination reaction. The decomposition reaction takes place only when the energy in the form of heat, electricity or light is supplied.
Example: Ferrous sulphate crystals on heating in a dry boiling tube gives the following reaction:

$$2FeSO_4(s) \xrightarrow{\text{Heat}} Fe_2O_3(s) + SO_2(g) + SO_3(g)$$

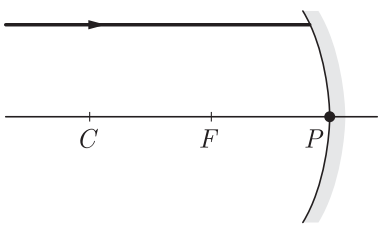
Which of the following gas has a smell of burning sulphur?
(a) Sulphur oxide
(b) Sulphur dioxide
(c) Sulphur chloride
(d) None of these

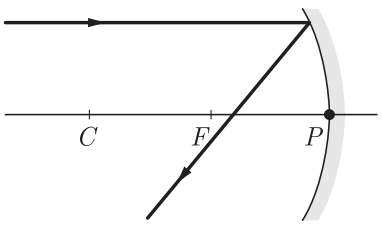
37. The only reptile having 4 chambered heart is:
(a) Snake (b) Turtle
(c) Lizard (d) Crocodile

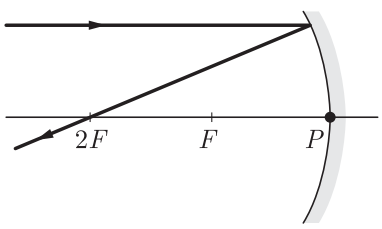
38. The excretory system of human beings includes?
(a) A pair of kidneys
(b) A pair of ureters
(c) A urinary bladder and a urethra
(d) All of the above

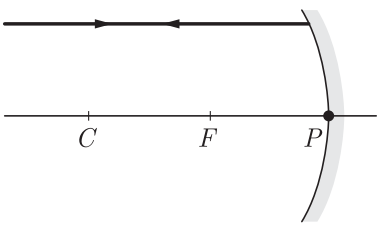
39. Convergence of concave mirror can be decreased by dipping in
(a) Water (b) Oil
(c) Both (d) None of these

40. Which of the following ray diagrams is correct for the ray of light incident on a concave mirror as shown in Figure?



(a)


(b)


(c)


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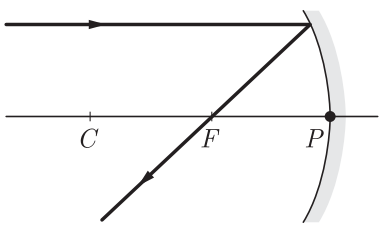
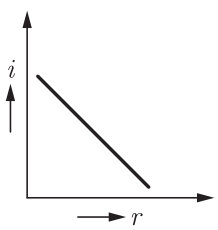


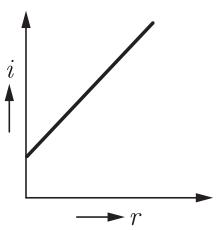
41. Trans location is the process in which plants deliver:
(a) minerals from leaves to other parts of the plant
(b) plant growth hormones from leaves to other parts of the plant
(c) water and organic substance from leaves to other parts of the plant
(d) all of the above

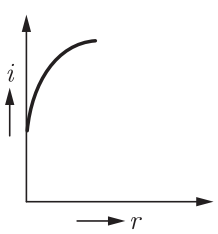
42. Normally, in a healthy adult, the initial filtrate in the kidneys is about :
(a) 100 L/day
(b) 150 L/day
(c) 180 L/day
(d) 200 L/day

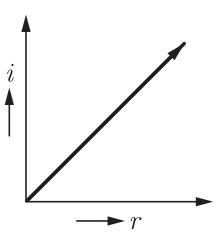
43. A thin layer of water is transparent but a very thick layer of water is:
(a) translucent
(b) opaque
(c) most transparent
(d) none of these

44. Which of the following correctly represents graphical relation between angle of incidence (i) and angle of reflection (r)?

(a)


(b)


(c)


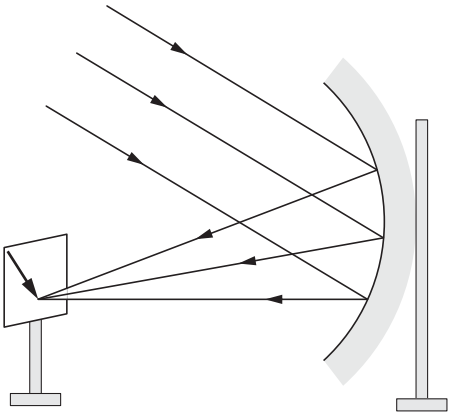
(d)


45. A ray of light falls normally on the surface of a transparent glass slab. The angle of emergence is-
(a) 0°
(b) 90°
(c) 45°
(d) 70°

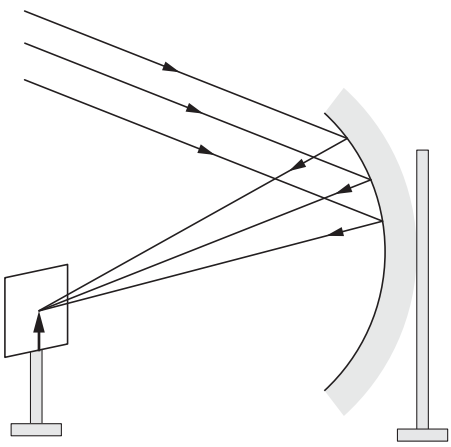
46. Two thin lenses of power $+3.5\,\text{D}$ and $-2.5\,\text{D}$ are placed in contact. The power of the lens combination is-
(a) $+1\,\text{D}$
(b) $+1.5\,\text{D}$
(c) $+2.5\,\text{D}$
(d) $+2\,\text{D}$

47. Parallel rays from the top of a distant object, incident on a concave mirror form an image on the screen. The diagram correctly showing the image of the object on the screen in figure is:

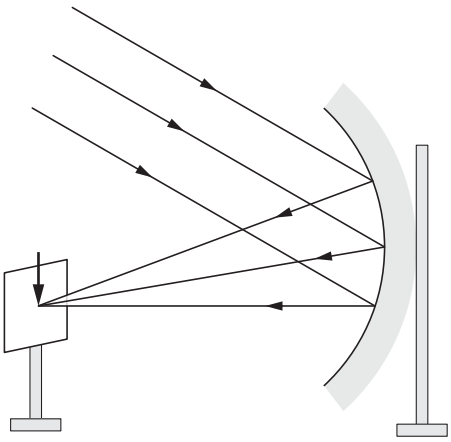
(a)



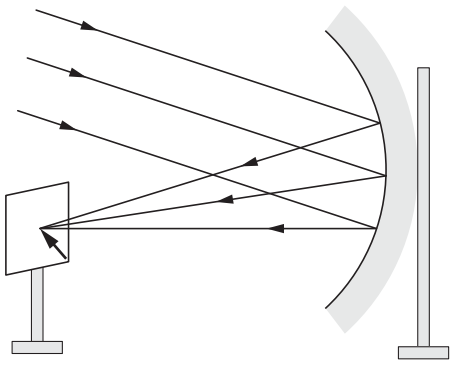
(b)



(c)



(d)



48. Silver articles become black on prolonged exposure to air. This is due to the formation of

(a) Ag_3N (b) Ag_2O

(c) Ag_2S (d) Ag_2S and Ag_3N

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)

A student takes the there solutions P, Q and R and make the reaction of all these solution with phenolphthalein indicator and methyl orange indicator. He get the following result:

Solutions	**Colour change with phenolphthalein indicator**	**Colour change with methyl orange indicator**
P	Pink	Yellow
Q	Colourless	Orange
R	Colourless	Red

49. The acidic solution is

(a) P (b) Q

(c) R (d) None of these

50. The increasing of pH of solution P, Q and R is

(a) $P < Q < R$

(b) $R < P < Q$

(c) $R < Q < P$

(d) $Q < R < P$

51. Solutions P and Q could be

(a) HCl and NaOH

(b) NaOH and NaCl

(c) CH_3COOH and CH_3COONa

(d) HCl and Na_2CO_3

52. When solution P added to the China rose indicator, the colour of the solution P changes to

(a) Green (b) Dark red

(c) Pink (d) Colourless

Case Based Questions: (53-56)

The organs of our excretory system help in releasing waste from our body. If these wastes are not removed, we may fall sick. Hence, wastes built up from cell activities and digestion need to be removed. The excretory system of humans consists of a pair of kidneys, pair of ureter, a urinary bladder and urethra. Kidneys are located in abdomen, one on other side of the backbone. Urine produced in kidneys passes through the ureter into the urinary bladder where it gets stored for sometime and then is released through urethra.

Each kidney is made up of one million nephrons and each nephron consists of a cup-shaped upper end called Bowman's capsule containing a bunch of capillaries called glomerulus.

The Bowman's capsule leads to proximal convoluted tubule, loop of Henle and distal convoluted tubule which joins the collecting duct.

53. Which among the following is the least toxic form of excretory product?

(a) Urea (b) Uric acid

(c) Ammonia (d) CO_2

54. An outline of principal events of urination is given below in a random manner.

I Stretch receptors on the wall of the urinary bladder send signals to CNS.

II Bladder fills with urine and become distended.

III Micturition.

IV CNS passes on motor messages to initiate contraction of smooth muscle of bladder and simultaneous relaxation of urethral sphincter.

The correct sequence of events is

(a) I → II → III → IV

(b) IV → III → II → I

(c) II → I → IV → III

(d) III → II → I → IV

55. A person with no/less food and beverage intake, will have ..... in urine.

(a) little glucose (b) less urea

(c) excess urea (d) little fat

56. Glomerular filtrate is first collected by

(a) distal convoluted tubule

(b) proximal convoluted tubule

(c) Bowman's capsule

(d) Loop of Henle

Case Based Questions: (57-60)

The hotter air is lighter (less dense) than the cooler air above it and has a refractive index slightly less than that of the cooler air. Since the physical condition of the refracting medium (air) are not stationary, therefore, the light goes from rarer medium to denser medium in atmosphere. This phenomenon is called atmospheric refraction.

The twinkling of stars and advanced sunrise and delayed sunset are common examples of atmospheric refraction.

57. Stars appear to twinkle because of

(a) movement of air

(b) atmospheric refraction

(c) both (a) and (b)

(d) none of these

58. Which of the following is not caused because of atmospheric refraction?

(a) Apparent image of Sun is formed closer to the Earth.

(b) Dawn or dusk are formed

(c) Sun can be seen 2 minutes before actual sunrise and 2 minutes after actual sunset.

(d) Clouds look white

59. During sunset or sunrise the Sun appears reddish because

(a) due to longer passage in atmosphere, even red light in the sunlight scatters

(b) Sun produces red light at this time

(c) at this time Sun is not very hot

(d) none of these

60. When sunlight enters the atmosphere the colours which scatter first are

(a) only red

(b) red, orange and yellow

(c) blue and green

(d) violet, indigo and blue

SAMPLE PAPER - 27 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1.	(d)	Ch-1	49
2.	(b)	Ch-2	67
3.	(a)	Ch-3	95
4.	(d)	Ch-1	47
5.	(a)	Ch-2	45
6.	(a)	Ch-1	144
7.	(d)	Ch-1	60
8.	(d)	Ch-2	130
9.	(a)	Ch-2	128
10.	(b)	Ch-1	140
11.	(c)	Ch-4	211
12	(d)	Ch-4	59
13	(b)	Ch-4	26
14	(a)	Ch-4	132
15	(b)	Ch-4	141
16	(c)	Ch-4	151
17	(b)	Ch-5	28
18	(a)	Ch-5	170
19	(c)	Ch-5	49
20	(b)	Ch-5	50
21	(b)	Ch-5	51
22	(a)	Ch-5	New
23	(b)	Ch-5	New
24	(d)	Ch-6	18
25	(a)	Ch-2	139
26	(b)	Ch-2	138
27	(c)	Ch-3	58
28	(c)	Ch-3	43
29	(c)	Ch-2	143
30	(c)	Ch-3	102
31	(c)	Ch-2	165

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(d)	Ch-1	155
33	(d)	Ch-4	227
34	(a)	Ch-6	65
35	(a)	Ch-2	23
36	(b)	Ch-1	133
37	(d)	Ch-4	114
38	(d)	Ch-4	129
39	(d)	Ch-5	62
40	(d)	Ch-5	55
41	(d)	Ch-4	144
42	(c)	Ch-4	160
43	(a)	Ch-5	59
44	(d)	Ch-5	63
45	(a)	Ch-5	27
46	(a)	Ch-5	34
47	(c)	Ch-5	91
48	(c)	Ch-3	5
49	(c)	Ch-3	218
50	(a)	Ch-3	219
51	(b)	Ch-3	220
52	(a)	Ch-3	221
53	(b)	Ch-4	New
54	(c)	Ch-4	New
55	(b)	Ch-4	New
56	(c)	Ch-4	New
57	(b)	Ch-5	77
58	(d)	Ch-5	78
59	(a)	Ch-5	79
60	(d)	Ch-5	80