

Sample/Pre-Board Paper 25
Class X Term 1 Exam Nov -Dec 2021
Science (086)

Time: 90 Minutes

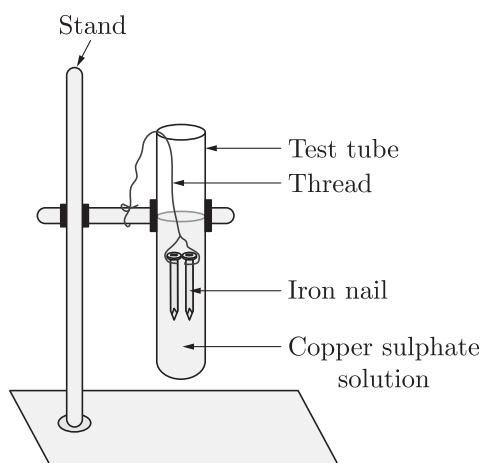
General Instructions:

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. One day Mohan was performing an experiment in the laboratory. By mistake he left the iron nail in the copper sulphate solution for one week.



After one week, the colour of sulphate solution is:

- (a) Green (b) Yellow
(c) Red (d) Colourless
2. To a sample of turmeric adulterated with metanil yellow, concentrated hydrochloric acid was added. The colour of the reaction mixture
- (a) became green (b) became blue
(c) remained the same (d) disappeared
3. Which of the following is incorrect regarding to non-metal?
1. They are neither malleable nor ductile
 2. They are brittle
 3. They are sonorous
 4. They are poor conductor of heat and electricity (except graphite)
- (a) 1 (b) 2 and 3
(c) 3 (d) 4 and 1

4. When white silver chloride is left exposed to sunlight, its colour becomes:
- (a) Gray (b) Yellow
(c) Green (d) Red

5. Which of the following is not a mineral acid?
- (a) Hydrochloric acid (b) Citric acid
(c) Sulphuric acid (d) Nitric acid

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

7. The reaction $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$ is an example of
- (a) decomposition reaction
(b) displacement reaction
(c) combination reaction
(d) double displacement reaction

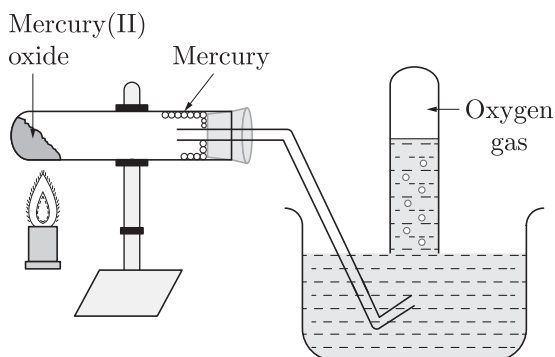
8. Match the items of Column I with the items of the Column II

	Column I		Column II
(i)	$\text{NH}_4\text{OH} + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{COONH}_4 + \text{H}_2\text{O}$	(A)	Thermal decomposition
(ii)	$2\text{AgBr} \rightarrow 2\text{Ag} + \text{Br}_2$	(B)	Thermite reaction
(iii)	$\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$	(C)	Photochemical reaction
(iv)	$2\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$	(D)	Neutralization reaction

- (a) (iv)-(B), (iii)-(D), (ii)-(A), (i)-(C)
(b) (iii)-(A), (i)-(B), (iii)-(C), (iv)-(D)
(c) (ii)-(B), (iv)-(A), (i)-(C), (iii)-(D)
(d) (i)-(D), (ii)-(C), (iii)-(A), (iv)-(B)

9. Metal carbonate + acid \rightarrow salt + Y + water
Here Y is:
(a) carbon dioxide (b) carbon monoxide
(c) carbon chloride (d) metal oxide

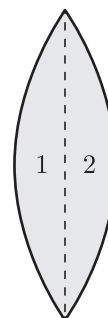
10. The given diagram represents a reaction.



- (a) Thermal decomposition (b) Displacement
(c) Double displacement (d) Combination
11. Which of the following statements are true about respiration?
A. Haemoglobin has greater affinity for CO_2 than O_2 .
B. The gaseous exchange takes place in the alveoli.
C. During inhalation ribs move inward and diaphragm is raised.
D. Haemoglobin has greater affinity for O_2 than CO_2 .
(a) B and D (b) A and C
(c) B and C (d) A and B
12. The alimentary canal in human beings is extended from:
(a) Small intestine to large intestine
(b) Entire large intestine
(c) Small intestine to anus
(d) Mouth to anus
13. Various organism breakdown the complex substances into simpler one with the help of:
(a) Multiple organs
(b) Small and large intestine
(c) Enzymes
(d) Bacteria
14. This is the functional unit of the kidney?
(a) Hilum (b) Neurons
(c) Nephrons (d) Medulla
15. Structural and functional unit of kidney is?
(a) Hilum (b) Renal pelvis
(c) Nephron (d) Nephridia
16. The best long term solution for kidney failure is?
(a) Dialysis (b) Kidney transplant
(c) Both A and B (d) Only B

17. No matter how far you stand from a mirror, your image appears erect. The mirror is likely to be-
(a) Plane
(b) Concave
(c) Convex
(d) Either plane or convex

18. 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) $2f$
19. The focal length of a lens of power -2.0 D is-
(a) -50 cm (b) 40 cm
(c) 50 cm (d) -40 cm
20. A doctor has prescribed a corrective lens of power $+1.5 \text{ D}$. The focal length of the lens is-
(a) 67 cm (b) 70 cm
(c) 40 cm (d) 65 cm
21. An object is placed at a distance of 30 cm from a convex mirror, the magnification produced is $\frac{1}{2}$. Where should the object be placed to get the magnification of $\frac{1}{3}$?
(a) -60 cm (b) 40 cm
(c) 50 cm (d) 60 cm
22. The imaginary line passing through the pole and the center of curvature of the curved mirror is called its
(a) Focal length
(b) Radius of curvature
(c) Principal axis
(d) None
23. which of the following (referred to a spherical mirror) depends on whether the rays are paraxial or not?
(a) Aperture
(b) Focus
(c) Twice of focal length
(d) Principal axis

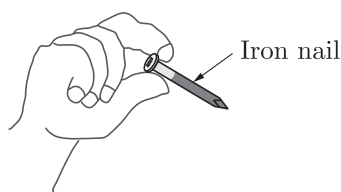
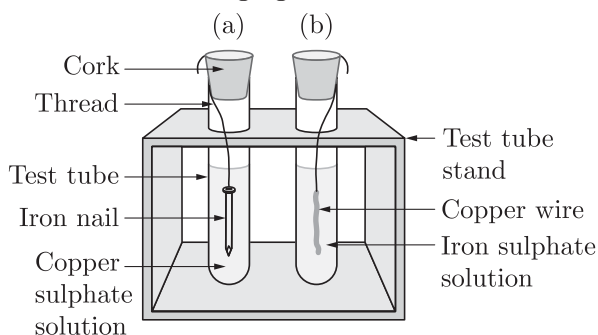
24. The bluish colour of water in deep sea is due to
- the presence of algae and other plants found in water
 - reflection of sky in water
 - scattering of light
 - absorption of light by the sea.

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. The correct statement regarding universal indicator is
- it gives orange colour at $\text{pH} = 3$
 - it becomes colourless at $\text{pH} = 7$
 - it is an indicator having $\text{pH} = 7$
 - it gives blue colour at $\text{pH} = 3$
26. The pH of soft drink is and they are
- less than 7, acidic
 - more than 7, basic
 - equal to 7, neutral
 - less than 7, basic

27. Consider the following figure.



Which of the following reaction take place in first test tube?

- $\text{Fe}(\text{s}) + \text{CuSO}_4(\text{aq}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$
- $\text{Fe}(\text{s}) + \text{CuSO}_3(\text{aq}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$
- $\text{Fe}(\text{s}) + \text{CuSO}_4(\text{aq}) \longrightarrow \text{FeSO}_3(\text{aq}) + \text{Cu}(\text{s})$
- $\text{Fe}(\text{s}) + \text{CuSO}_4(\text{aq}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Heat}$

28. The negative and positive ions are held by _____ of attraction.
- positive force
 - electrostatic force
 - negative force
 - none of the above

29. The hydrogen ion concentration of a solution is $1.0 \times 10^{-9} \text{ M}$. The pH of the solution is:
- 10
 - 9
 - 11
 - 8

30. Food cans are coated with tin and not with zinc because
- Zinc is costlier than tin.
 - Zinc has higher melting point than tin.
 - Zinc is more reactive than tin.
 - Zinc is less reactive than tin.

31. **Assertion :** On heating, colour of hydrated copper sulphate changes from blue to white.
Reason : Copper sulphate is a crystalline salt.
- Both Assertion and Reason are true and Reason is the correct explanation of the Assertion.
 - Both Assertion and Reason are true but Reason is not the correct explanation of the Assertion.
 - Assertion is true but the Reason is false.
 - Both Assertion and Reason are false.

32. **Assertion :** Photosynthesis is considered as an endothermic reaction.
Reason : Energy gets released in the process of photosynthesis.
- Both Assertion and Reason are True and Reason is the correct explanation of the Assertion.
 - Both Assertion and Reason are True but Reason is not the Correct explanation of the Assertion.
 - Assertion is True but the Reason is False.
 - Both Assertion and Reason are False.

33. **Assertion :** Artificial kidney is a device used to remove nitrogenous waste products from the blood through dialysis.
Reason : Reabsorption does not occur in artificial kidney.
- Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 - Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 - Assertion is true but Reason is false.
 - Assertion is false but Reason is true.

34. Assertion : Different colour of light bends through different angles with respect to the incident ray when they pass through a prism. The red light bends the least while violet the most.

Reason : Different colour of light bends through different angles with respect to the incident ray when they pass through a prism. The red light bends the least while violet the most.

- (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 responsible for causing acid-rain?

- (a) Oxides of sulphur and carbon dioxide
- (b) Oxides of nitrogen and carbon monoxide
- (c) Hydrogen sulphide and carbon dioxide
- (d) Oxides of sulphur and nitrogen

36. The reason of colour changing of silver anklet after few day is:

- (a) formation of silver sulphide.
- (b) formation of silver nitrate.
- (c) formation of silver chloride.
- (d) formation of silver bromide.

37. 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

38. What types of nitrogenous wastes are excreted by living organisms?

- (a) Ammonia
- (b) Uric acid
- (c) Urea
- (d) All of the above

39. 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

40. A 6 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 15 cm. The distance of the object from the lens is 10 cm. The position, of the image is-

- (a) 20 cm
- (b) 30 cm
- (c) - 30 cm
- (d) 50 cm

41. The richest natural source of minerals for plants is

- (a) chemical fertilizers
- (b) soil
- (c) air
- (d) water

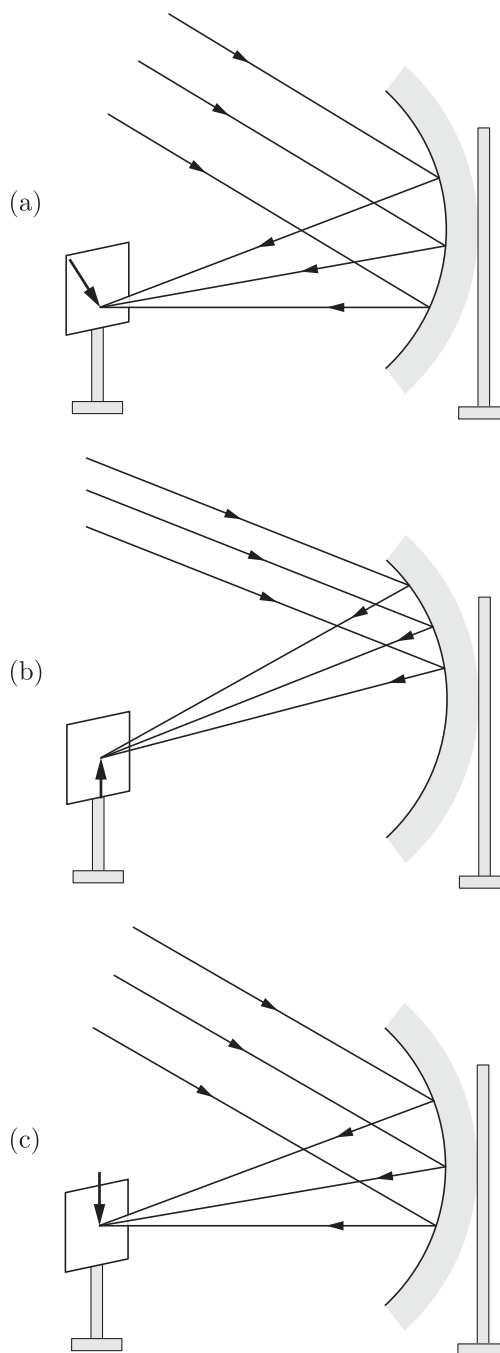
42. The purpose of making urine is to:

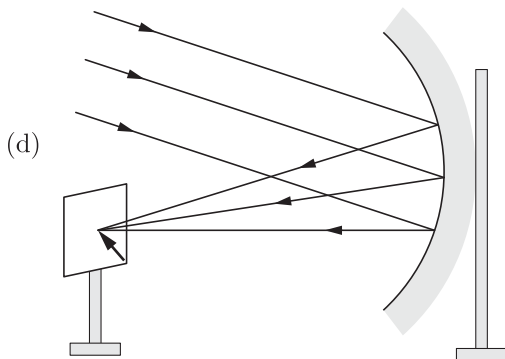
- (a) filter out waste products from the blood
- (b) filter out minerals from the blood
- (c) filter out water from the blood
- (d) none of these

43. The laws of reflection hold good for:

- (a) plane mirror only
- (b) concave mirror only
- (c) convex mirror only
- (d) All mirrors irrespective of their shape.

44. 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:





45. A doctor has prescribed a corrective lens of power $+1.5\text{ D}$. The focal length of the lens is-
- (a) 67 cm (b) 70 cm
(c) 40 cm (d) 65 cm
46. An object of height 5 cm is placed perpendicular to the principal axis of a concave lens of focal length

10 cm. If the distance of the object from the optical centre of the lens is 20 cm, the size of the image is-

- (a) 1.66 cm (b) 2.16 cm
(c) 1.69 cm (d) 2.91 cm

47. Magnification produced by a rear view mirror fitted in vehicles
- (a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it.
48. Why are non-metals poor conductors of electricity?
- (a) They have high melting point.
(b) They are brittle.
(c) Non-metals are not lustrous.
(d) They do not have free electrons.

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 metal M reacts vigorously with water to form a solution S and a gas G . The solution S turns red litmus to blue whereas gas G , which is lighter than air, burns with a pop sound. Metal M has a low melting point and is used as a coolant in nuclear reactors.

49. The metal M is:
- (a) Sodium (b) Copper
(c) Iron (d) Steel
50. The solution S is:
- (a) NaCl (b) NaOH
(c) CaCl_2 (d) CaOH
51. Here the gas G is:
- (a) Hydrogen
(b) Oxygen
(c) Carbon-dioxide
(d) Nitrogen
52. Which of the following balanced reaction take place here?
- (a) $\text{Na} + \text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O} + \text{H}_2$
(b) $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow 2\text{NaOH} + \text{H}_2$
(c) $2\text{Na} + 2\text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O}_2 + \text{O}_2$
(d) $\text{Na} + \text{H}_2\text{O} \longrightarrow \text{Na}_2\text{O}_2 + \text{H}_2$

Case Based Questions: (53-60)

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. The pancreas secretes pancreatic juice which contains enzymes like trypsin for digesting proteins and lipase for breaking down emulsified fats. The walls of the small intestine contain glands which secrete intestinal juice. The enzymes present in it finally convert the proteins to amino acids, complex carbohydrates into glucose and fats into fatty acids and glycerol.

53. The food coming from the stomach is made alkaline by:
- (a) Bile juice (b) Pancreatic juice
(c) Gastric juice (d) Intestinal juice
54. In small intestine proteins are decomposed into:
- (a) fatty acids only
(b) glucose
(c) amino acids
(d) fatty acids and glycerol



55. Which enzymes are present in the pancreatic juice for digestion of proteins and fats?
 (a) Amylase and pepsin (b) Amylase and lipase
 (c) Pepsin and trypsin (d) Lipase and trypsin
56. Which two organs release their secretions into small intestine for digestion of food?
 (a) Liver and stomach
 (b) Oesophagus and stomach
 (c) Pancreas and stomach
 (d) Liver and pancreas
57. The magnification produced by a spherical mirror of an object of 5 cm is 2. The size of the image formed by this spherical mirror will be:
 (a) 20 cm (b) 0.4 cm
 (c) 2.5 cm (d) 10 cm
58. A concave mirror forms a virtual image of an object placed at a distance 20 cm. If the size of the image is twice of the size of the object then the image will be formed at a distance:
 (a) 40 cm (b) 10 cm
 (c) 20 cm (d) 30 cm

Case Based Questions: (57-60)

If the position of object in front of the mirror is changed, the size of image changes. If the lengths of the object and image are measured perpendicular to the principle axis, the ratio of length of the image to the length of the object is called linear magnification it is represent by ' m '.

The magnification m is also related to the object distance and image distance. It can be expressed as:

Magnification,
$$m = \frac{h'}{h} = -\frac{v}{u}$$

The height of the object is taken to be positive as the object is usually placed above the principal axis. The height of the image should be taken as positive for virtual images. However, it is to be taken as negative for real images. A negative sign in the value of the magnification indicates that the image is real. A positive sign in the value of the magnification indicates that the image is virtual.

59. The magnification produced by a spherical mirror is -2 . What type of mirror is it?
 (a) Either a convex or a concave mirror
 (b) A plane mirror
 (c) A convex mirror
 (d) A concave mirror
60. An object of size 5 cm is placed at a distance of 20 cm in front of a concave mirror focal length 10 cm. The distance of the image from the mirror and its height will be:
 (a) $v = -20$ cm, $h_i = +5$ cm
 (b) $v = +30$ cm, $h_i = +5$ cm
 (c) $v = +20$ cm, $h_i = +10$ cm
 (d) $v = -20$ cm, $h_i = -5$ cm

SAMPLE PAPER - 20 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(a)	Ch-1	176
2	(c)	Ch-2	108
3	(c)	Ch-3	132
4	(a)	Ch-1	40
5	(b)	Ch-2	26
6	(c)	Ch-1	102
7	(c)	Ch-1	19
8	(d)	Ch-2	54
9	(a)	Ch-2	111
10	(a)	Ch-1	58
11	(d)	Ch-4	214
12	(d)	Ch-4	52
13	(c)	Ch-4	19
14	(c)	Ch-4	118
15	(c)	Ch-4	117
16	(b)	Ch-4	121
17	(d)	Ch-5	13
18	(d)	Ch-5	169
19	(a)	Ch-5	19
20	(a)	Ch-5	20
21	(a)	Ch-5	25
22	(c)	Ch-5	New
23	(d)	Ch-5	New
24	(c)	Ch-6	11
25	(a)	Ch-2	141
26	(a)	Ch-2	104
27	(a)	Ch-3	166
28	(b)	Ch-3	35
29	(b)	Ch-2	136
30	(c)	Ch-3	92
31	(b)	Ch-2	158

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(c)	Ch-1	166
33	(c)	Ch-4	241
34	(a)	Ch-6	58
35	(d)	Ch-2	44
36	(a)	Ch-1	172
37	(b)	Ch-4	107
38	(d)	Ch-4	122
39	(a)	Ch-5	44
40	(c)	Ch-5	43
41	(b)	Ch-4	137
42	(a)	Ch-4	153
43	(d)	Ch-5	52
44	(c)	Ch-5	106
45	(a)	Ch-5	20
46	(a)	Ch-5	41
47	(a)	Ch-5	84
48	(d)	Ch-3	55
49	(a)	Ch-3	198
50	(b)	Ch-3	199
51	(a)	Ch-3	200
52	(b)	Ch-3	201
53	(a)	Ch-4	263
54	(c)	Ch-4	264
55	(d)	Ch-4	265
56	(d)	Ch-4	266
57	(d)	Ch-5	227
58	(a)	Ch-5	228
59	(d)	Ch-5	229
60	(d)	Ch-5	230