SAMPLE QUESTION PAPER

SCIENCE
(Solved)
Class : X

Time : 90 Min.
Max. Marks : 40

3

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 (0.80).
6. There is no negative marking.

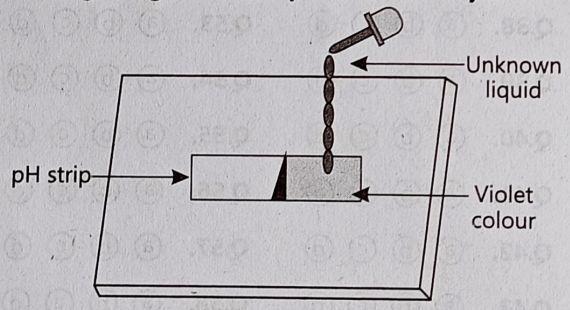
SECTION-A

Directions (Q.Nos. 1-24): *Section 'A' consists of* 24 *questions. Attempt any* 20 *questions from this section. The first attempted* 20 *questions would be evaluated.*

Q 1. A substance 'X' is used in white-washing and is obtained by heating limestone in the absence of air. Identify 'X'.

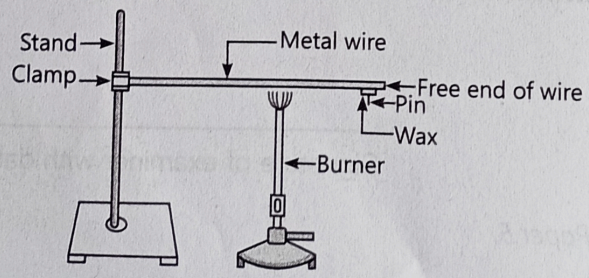
a. $CaOCl_2$ b. $Ca(OH)_2$ c. CaO d. $CaCO_3$

Q 2. On putting a few drops of an unknown liquid on the pH strip as shown below, the colour of pH strip changes to green. The liquid taken is likely to be:



a. dilute hydrochloric acid
b. dilute sodium hydroxide
c. water
d. dilute acetic acid

Q 3. Observe the given figure and answer the question that follows:



Which of the following metals can be suitable for the experiment?

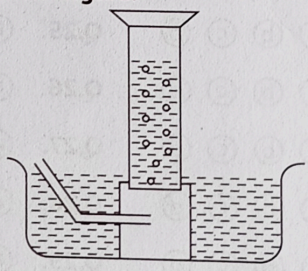
(i) Iron **(ii) Gallium**
(iii) Caesium **(iv) Copper**

a. (i) and (iv) b. (i) and (iii)
c. (ii) and (iii) d. (ii) and (iv)

Q 4. To indicate the presence of gaseous reactant or product, we use the symbol:

a. (Product)(*g*) or (Reactant)(*g*)
b. (Product) ↑ or (Reactant) ↑
c. (Product) ↓ or (Reactant) ↓
d. Both a. and b.

Q 5. A reactive metal (M) is treated with H_2SO_4 (dil). The gas is evolved and is collected over the water as shown in figure.



The correct conclusion drawn is/are:

a. the gas is hydrogen
b. the gas is lighter than air
c. the gas is SO_2 and is lighter than air
d. Both a. and b.

Q 6. When calcium carbonate is heated, it decomposes to give ..... and .....

a. $CaO(s), CO_2(g)$ b. $CO_2(g), H_2O(l)$
c. $Ca(OH)_2(s), CO_2(g)$ d. $H_2O(g), CO_2(g)$

Q 7. Black and white photography uses:

a. decomposition of silver chloride
b. decomposition of silver bromide
c. Both a. and b.
d. None of the above

Q 8. Match the salts given in column (I) with their appropriate acids and bases given in column (II).

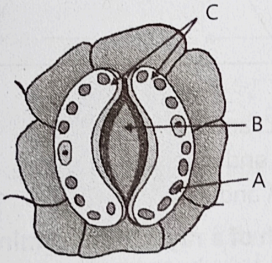
Column I	Column II
(A) KNO_3	(i) Nitric acid, silver hydroxide
(B) $AgNO_3$	(ii) Hydrochloric acid, Magnesium hydroxide
(C) $MgCl_2$	(iii) Carbonic acid, Ammonium hydroxide
(D) $(NH_4)_2CO_3$	(iv) Nitric acid, potassium hydroxide

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

Q 9. Sodium carbonate is a basic salt because it is a salt of: *(NCERT EXEMPLAR)*
a. strong acid and strong base
b. weak acid and weak base
c. strong acid and weak base
d. weak acid and strong base

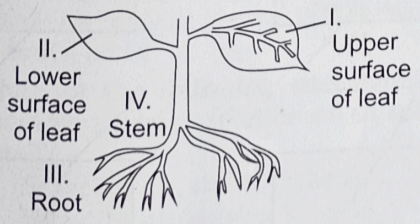
Q 10. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is $SO_2 + 2H_2S \rightarrow 2H_2O + 3S$. Here, hydrogen sulphide is acting as:
a. an oxidising agent
b. a reducing agent
c. a dehydrating agent
d. a catalyst

Q 11. Carefully study the diagram of opened stomatal pore with labels *A*, *B* and *C*. Select the option which gives correct function of label *C*.



a. site of photosynthesis
b. exchange of gases
c. opening and closing of stomatal pore
d. None of the above

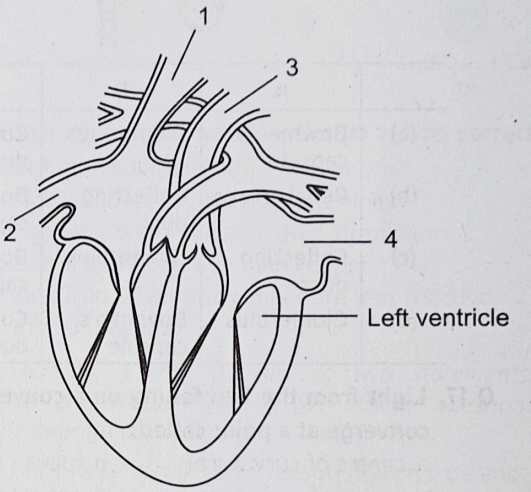
Q 12. The diagram shows parts of a flowering plant. Where does the most transpiration take place?



a. (III) – root
b. (II) – lower surface of leaf
c. (IV) – stem
d. (I) – upper surface of leaf

Q 13. Choose the forms in which most plants absorb nitrogen: *(NCERT EXEMPLAR)*
(i) Proteins
(ii) Nitrates and Nitrites
(iii) Urea
(iv) Atmospheric nitrogen
a. (i) and (ii)
b. (ii) and (iii)
c. (iii) and (iv)
d. (i) and (iv)

Q 14. The diagram shows a vertical section through the heart:



What are the functions of the numbered blood vessels?

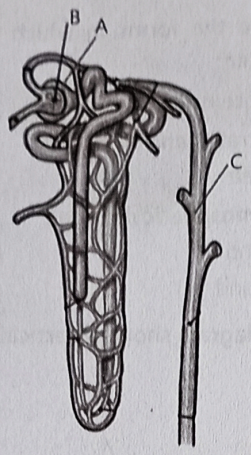
S.No.	Carries blood to body	Carries blood to lungs	Carries blood from lungs	Carries blood from body
a.	1	2	3	4
b.	1	3	4	2
c.	2	4	3	1
d.	3	1	4	2

Q 15. Which substances are produced by anaerobic respiration in yeast?

S. No.	Carbon dioxide	Alcohol	Lactic acid	Water
a.	✓	✓	✗	✗
b.	✓	✗	✓	✗
c.	✗	✓	✗	✓
d.	✗	✗	✓	✓

Key ✓ = produced, ✗ = not produced.

Q 16. The figure given ahead figure represents a single nephron from a mammalian kidney. Identify the labelled parts by selecting the most appropriate option.

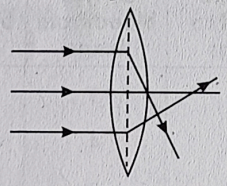


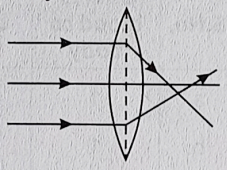
	A	B	C
(a)	Bowman's capsule	Glomerulus	Collecting duct
(b)	Renal artery	Collecting duct	Bowman's capsule
(c)	Collecting duct	Glomerulus	Bowman's capsule
(d)	Glomerulus	Bowman's capsule	Collecting duct

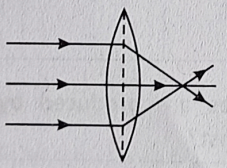
Q 17. Light from the Sun falling on a convex lens will converge at a point called:

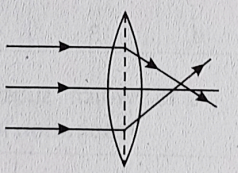
a. centre of curvature
b. focus
c. radius of curvature
d. optical centre

Q 18. The distance between the optical centre and point of convergence is called focal length. In which of the following cases it is correctly shown?

a. 

b. 

c. 

d. 

Q 19. You are given three media *A*, *B* and *C* of refractive index 1.33, 1.65 and 1.46. The medium in which the light will travel fastest is:

a. *A*
b. *B*
c. *C*
d. equal in all three media

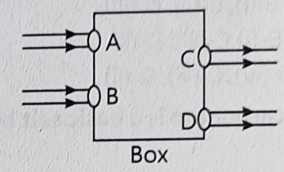
Q 20. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?

a. A convex lens of focal length 50 cm
b. A concave lens of focal length 50 cm
c. A convex lens of focal length 5 cm
d. A concave lens of focal length 5 cm

Q 21. Twinkling of stars is due to atmospheric: *(NCERT EXEMPLAR)*

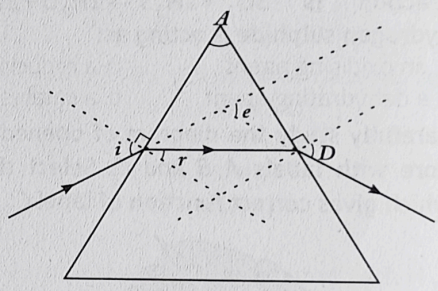
a. dispersion of light by water droplets
b. refraction of light by different layers of varying refractive indices
c. scattering of light by dust particles
d. internal reflection of light by clouds

Q 22. Beam's of light are incident through the holes *A* and *B* and emerge out of box through the holes *C* and *D* respectively as shown in the figure. Which of the following could be inside the box? *(NCERT EXEMPLAR)*



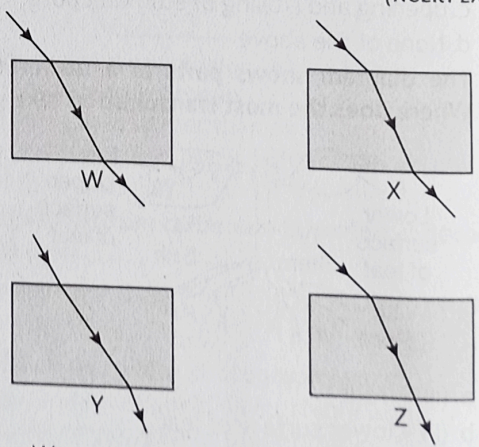
a. A rectangular glass slab
b. A convex lens
c. A concave lens
d. A prism

Q 23. In the following diagram, the correctly marked angles are: *(CBSE 2017)*



a. all
b. only $\angle i$ and $\angle A$
c. $\angle i$, $\angle r$ and $\angle A$
d. $\angle i$, $\angle A$ and $\angle D$

Q 24. The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown as *W*, *X*, *Y* and *Z* in figure. Which one of them is correct? *(NCERT EXEMPLAR)*



a. *W*
b. *X*
c. *Y*
d. *Z*

SECTION-B

Directions (Q.Nos. 25-48): *Section 'B' consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.*

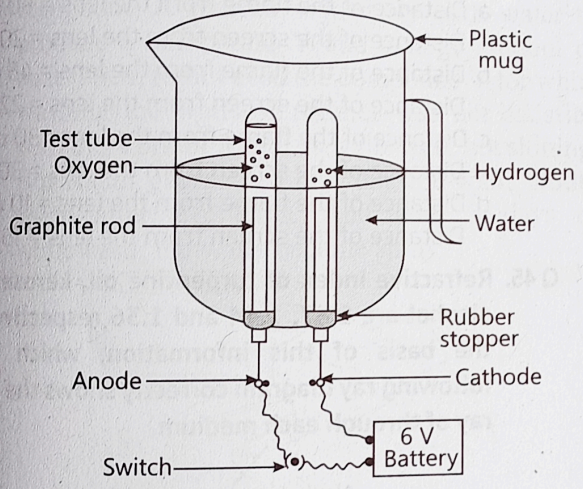
Q 25. Which of the following chemical equations is an unbalanced one?

a. $2NaHCO_3 \longrightarrow Na_2CO_3 + H_2O + CO_2$
b. $2C_4H_{10} + 12O_2 \longrightarrow 8CO_2 + 10H_2O$
c. $2Al + 6H_2O \longrightarrow 2Al(OH)_3 + 3H_2$
d. $4NH_3 + 5O_2 \longrightarrow 4NO + 6H_2O$

Q 26. The composition of aqua-regia is:

a. Dil. HCl : Conc. HNO_3
3 : 1
b. Conc. HCl : Dil. HNO_3
3 : 1
c. Conc. HCl : Conc. HNO_3
3 : 1
d. Dil. HCl : Dil. HNO_3
3 : 1

Q 27. The diagram shows the electrolysis of water.



A few drops of H_2SO_4 are added to pure water because:

a. it does not conduct electricity
b. pure water is a bad conductor of electricity
c. it makes the reaction faster
d. Both b. and c.

Q 28. Which of the following is true about ionic compounds?

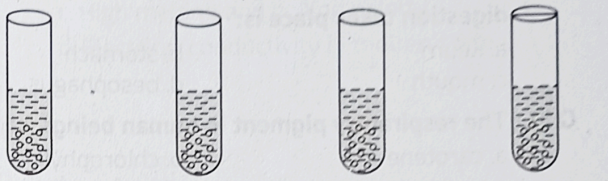
a. Ionic compounds conduct electricity when dissolved in water
b. Ionic compounds are not soluble in water
c. Ionic compounds are crystalline solids
d. Both a. and c.

Q 29. Which of the following statements is correct about an aqueous solution of an acid and of a base? *(NCERT EXEMPLAR)*

(i) Higher the pH, stronger the acid
(ii) Higher the pH, weaker the acid
(iii) Lower the pH, stronger the base
(iv) Lower the pH, weaker the base

a. (i) and (iii)
b. (ii) and (iii)
c. (i) and (iv)
d. (ii) and (iv)

Q 30. In each test tubes A, B, C and D, 2mL of solution of $Al_2(SO_4)_3$ in water was filled. Clean pieces of zinc was placed in test tube A, clean iron nail was put in test tube B, silver (Ag) was placed in test tube C and a clean copper wire was placed in test tube D.



Which of the following option(s) is/are correct about above experiment?

a. Zinc is more reactive than aluminium
b. Copper is more reactive than aluminium
c. Zinc is more reactive than copper
d. Zinc, iron, silver and copper are less reactive than aluminium

Directions (Q.Nos. 31-35): *Consist of two statements: Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:*

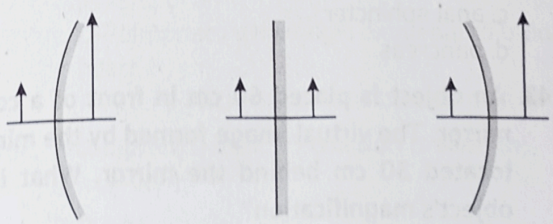
a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
b. Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A)
c. Assertion (A) is true but Reason (R) is false
d. Assertion (A) is false but Reason (R)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

Q 31. Assertion (A): Silver and gold do not react with oxygen even at high temperatures.
Reason (R): Silver and gold are less active metals.

Q 32. Assertion (A): The food items containing oil and fat are flushed with nitrogen.
Reason (R): Oil and fat become rancid on oxidation which has the bad taste and smell.

Q 33. Assertion (A): Herbivores have longer small intestine than carnivores.
Reason (R): Carnivores can digest cellulose due to the presence of enzyme, cellulose.

Q 34. Assertion (A): We can decide the nature of a mirror by observing the size of erect image in the mirror.



Reason (R): The minimum distance between a real object and its real image in a concave mirror is zero.

Q 35. Assertion (A): Phenolphthalein gives pink colour in basic solution.

Reason (R): Phenolphthalein is a natural indicator.

Q 36. The part of the digestive system where no digestion takes place is:

a. ileum b. stomach
c. mouth d. oesophagus

Q 37. The respiratory pigment in human beings is:

a. carotene b. chlorophyll
c. haemoglobin d. mitochondria

Q 38. Which one of the following statements is correct about the human circulatory system? *(CBSE 2020)*

a. Blood transports only oxygen and not carbon dioxide
b. Human heart has five chambers
c. Valves ensure that the blood does not flow backwards
d. Both oxygen rich and oxygen deficient blood gets mixed in the heart

Q 39. Two thin lenses of power, +3.5 D and −2.5 D are placed in contact, then the power and focal length of the lens combination is:

a. +1 D, +100 cm b. +2 D, +150 cm
c. +1 D, +200 cm d. +2 D, +100 cm

Q 40. An object 4 cm high is placed at a distance of 15 cm in front of a convex mirror having a radius of curvature of 10 cm. Then the image formed is at a distance of:

a. 7.5 cm behind the mirror
b. 3.75 cm in front of the mirror
c. 7.5 cm in front of mirror
d. 3.75 cm behind the mirror

Q 41. During vigorous physical exercise, lactic acid is formed from glucose inside the muscle cells because:

a. there is lack of oxygen
b. there is lack of water
c. there is excess of carbon dioxide
d. None of the above

Q 42. The exit of food from the stomach is regulated by:

a. sphincter muscle
b. liver
c. anal sphincter
d. pancreas

Q 43. An object is placed 60 cm in front of a convex mirror. The virtual image formed by the mirror is located 30 cm behind the mirror. What is the object's magnification?

a. +2 b. −2
c. +0.5 d. −0.5

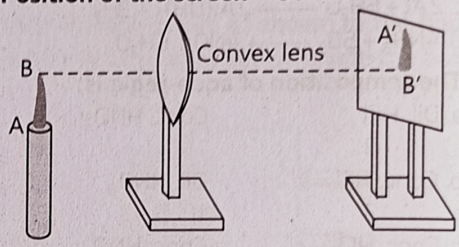
Q 44. Aditya and his friend Manoj placed a candle flame in front of a convex lens at various distances from it and obtained the image of the candle flame on a white screen.

He noted down the position of the candle, screen and the lens as under

Position of candle = 20 cm

Position of convex lens = 50 cm

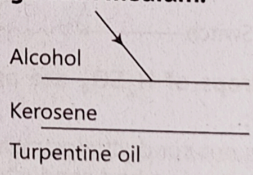
Position of the screen = 80 cm



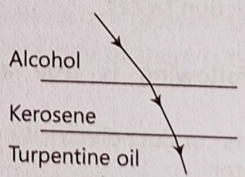
Manoj noted following observations at different positions of candle from the lens. According to Aditya one set of observations is incorrect. Find out if Aditya is right or not.

a. Distance of the flame from the lens = 60 cm;
Distance of the screen from the lens = 20 cm
b. Distance of the flame from the lens = 45 cm;
Distance of the screen from the lens = 22.5 cm
c. Distance of the flame from the lens= 30 cm;
Distance of the screen from the lens = 30 cm
d. Distance of the flame from the lens = 10 cm
Distance of the screen from the lens = 15 cm

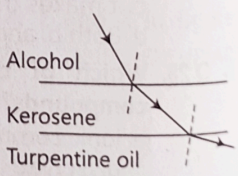
Q 45. Refractive index of turpentine oil, kerosene and alcohol are 1.47, 1.44 and 1.36 respectively. On the basis of this information, which of the following ray diagram correctly shows the path of ray of through each medium.



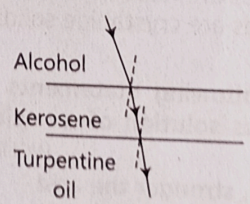
a.



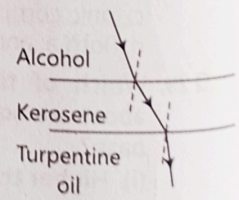
b.



c.



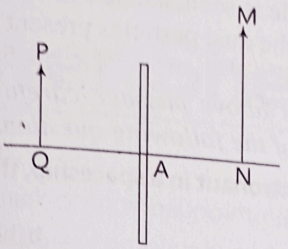
d.



Q 46. A divergent lens will produce:

a. always real image
b. always virtual image
c. Both real and virtual image
d. None of the above

Q 47. ***MN*** **is an image of an object** ***PQ*** **formed by an optical device** ***A.*** **Identify** ***A.***



a. concave lens
b. convex lens
c. concave mirror
d. convex mirror

Q 48. Which one of the following properties is not generally exhibited by ionic compounds? *(NCERT EXEMPLAR)*

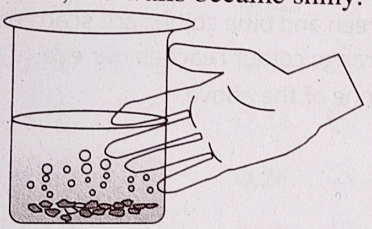
a. Solubility in water
b. Electrical conductivity in solid state
c. High melting and boiling points
d. Electrical conductivity in molten state

SECTION-C

Directions (Q.Nos. 49-60): *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 Study 1

Rahul is a skilled painter. He mixed a white coloured powder, compound X with water. The compound X reacted vigorously with water to produce a compound Y and a large amount of heat. Then, Rahul used the compound Y for white washing the walls. Customer was not satisfied with the work of Rahul as walls were not shining. But Rahul guaranteed him that the walls would shine after 2-3 days. And after 3 days of whitewash, the walls became shiny.



Read the above passage carefully and give the answer of the following questions:

Q 49. Name the compound X, that Rahul mixed with water.

a. calcium
b. calcium oxide
c. calcium carbonate
d. calcium hydroxide

Q 50. Name the compound Y that Rahul got after mixing X with water.

a. calcium
b. calcium oxide
c. calcium carbonate
d. calcium hydroxide

Q 51. What type of reaction has occurred here?

a. Decomposition reaction
b. Displacement reaction
c. Double displacement reaction
d. Combination reaction

Q 52. Which of the following reactions is responsible for shiny finish of the walls?

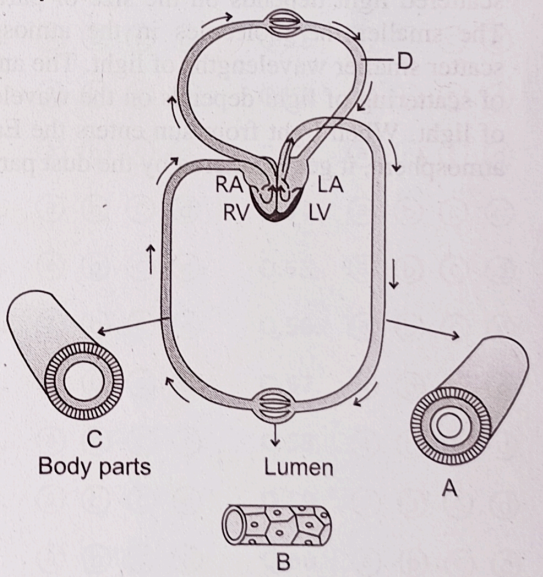
a. $CaO + H_2O \longrightarrow Ca(OH)_2$
b. $Ca + CO_2 \longrightarrow CaCO_3$
c. $Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$
d. $CaCO_3 + H_2O \longrightarrow Ca(OH)_2 + CO_2$

Case Study 2

Double circulation is a type of circulating system in which the blood passes through the heart twice before completing a full circuit of the body. Blood is pumped from the heart to the lungs and returns to the heart before being distributed to other organs and tissues of the body.

Read the above passage carefully and give the answer of the following questions:

Q 53. The figure shows blood circulation in humans with labels A to D. Select the option which gives correct identification of label and functions of the part.



a. B-Capillary-Thin without muscle layer and wall two cell layers thick
b. C-Vein-Thin walled and blood flows in jerks/spurts
c. D-Pulmonary vein-Takes oxygenated blood to heart,
d. A-Artery-Thick walled and blood flows evenly

Q 54. Incomplete double circulation is seen in:

a. mammals
b. pisces
c. aves
d. amphibians

Q 55. Which of the following animals shows double circulatory pathway?

a. Snake b. Frog
c. Eel d. Whale

Q 56. Select the option which properly represents pulmonary circulation in humans.

a. Left auricle $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$ Lungs $\xrightarrow[\text{blood}]{\text{Oxygenated}}$ Right ventricle

b. Left auricle $\xrightarrow[\text{blood}]{\text{Oxygenated}}$ Lungs $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$ Right ventricle

c. Right ventricle $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$ Lungs $\xrightarrow[\text{blood}]{\text{Oxygenated}}$ Left auricle

d. Right ventricle $\xrightarrow[\text{blood}]{\text{Oxygenated}}$ Lungs $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$ Left auricle

Case Study 3

The spreading of light by the air molecules is called scattering of light. The light having least wavelength scatters more. The sun appears red at sunrise and sunset, appearance of blue sky it is due to the scattering of light. The colour of the scattered light depends on the size of particles. The smaller the molecules in the atmosphere scatter smaller wavelengths of light. The amount of scattering of light depends on the wavelength of light. When light from sun enters the Earth's atmosphere, it gets scattered by the dust particles and air molecules present in the atmosphere. the path of sunlight entering in the dark room through a fine hole is seen because of scattering of the sun light by the dust particles present in its path inside the room.

Read the above passage carefully and give the answer of the following questions:

Q 57. To an astronaut in a spaceship, the colour of earth appears:

a. red b. blue
c. white d. black

Q 58. At the time of sunrise and sunset, the light from sun has to travel.

a. longest distance of atmosphere
b. shortest distance of atmosphere
c. Both a. and b.
d. can't say

Q 59. The colour of sky appears blue, it is due to the:

a. refraction of light through the atmosphere
b. dispersion of light by air molecules
c. scattering of light by air molecules
d. All of the above

Q 60. At the time of sunrise and sunset:

a. blue colour is scattered away and red colour reaches our eye
b. red colour is scattered away and blue colour reaches our eye
c. green and blue colour are scattered away and orange colour reaches our eye
d. None of the above

ANSWERS OF SAMPLE QUESTION PAPER-3

1. (b) $Ca(OH)_2$
   Slaked lime [$Ca(OH)_2$] is used for white washing walls.
2. (c) water
3. (a) (i) and (iv)
4. (d) Both (a) and (b)

KNOWLEDGE BOOSTER

The gaseous reactants and products in any chemical reaction can be demonstrated using the symbol (g) or '↑'. The liquid, aqueous and solid states of reactants and products are represented by the notations, (l), (aq) and (s) respectively.

5. (d) Both a. and b.
   When any reactive metal (M) reacts with the acid H_2SO_4 (dil), it evolves hydrogen gas (H_2). It is lighter than air.
   $M(s) + H_2SO_4\ (dil.) \longrightarrow MSO_4(aq) + H_2\ (g)$
6. (a) CaO(s), $CO_2(g)$
   $CaCO_3(s) \xrightarrow{Heat} CaO(s) + CO_2(g)$
7. (b) decomposition of silver bromide
8. (b) A-(iv), B-(i), C-(ii), D-(iii)
9. (d) weak acid and strong base
10. (b) a reducing agent
    Here, H_2S is oxidising into H_2O, hence acting as a reducing agent.
11. (c) opening and closing of stomatal pore
12. (b) (II)–lower surface of leaf

KNOWLEDGE BOOSTER

Lower surface of leaf has more stomata than upper surface of leaf. That is why, maximum transpiration occurs there.

13. (b) (ii) and (iii)

T!P

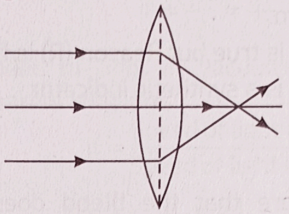
Nitrogen is taken up in the form of inorganic nitrates or nitrites or it is taken up as organic compounds from atmospheric nitrogen.

14. (d) 3, 1, 4, 2
    Vessel 1 is pulmonary artery and carries blood to lungs. Vessel 2 is vena cava and carries blood from body to heart. Vessel 3 is aorta and carries blood from heart to body. Vessel 4 is pulmonary vein and carries blood from lungs to heart.

T!P

Learn the labellings of human heart and also understand their functions.

15. (a) Carbon dioxide–✓ Alcohol–✓ Lactic acid–✗ Water–✗
    During anaerobic respiration in yeast, following equation shows the products synthesised:
    $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2$
16. (d) A – Glomerus, B – Bowman's capsule, C – Collecting duct
17. (b) focus
    The parallel ray coming from the Sun, after refraction through the convex lens converge at its focus.
18. (c)



Parallel rays after refraction meet at the focus of a convex lens.

19. (b) *B*

T!P

Light will travel faster in a medium having lower refractive index.

20. (c) A convex lens of focal length 5 cm.
21. (b) refraction of light by different layers of varying refractive indices
22. (a) A rectangular glass slab
23. (c) $\angle i$, $\angle r$ and $\angle A$
24. (b) *X*
    As the light ray undergoes two refractions, one at air-glass interface and the other at glass-air interface, therefore, path traced by student *X* is correct. Also, the emergent ray is parallel to incident ray and laterally displaced in the diagram of student *X* only.
25. (b) $2C_4H_{10} + 12O_2 \longrightarrow 8CO_2 + 10HO_2$
26. (c) Conc. HCl : Conc. HNO_3
    3 : 1
27. (d) Both b. and c.
28. (d) Both a. and c.
    Ionic compounds conduct electricity when dissolved in water or melted. They are soluble in water and are also crystalline solids.
29. (d) (ii) and (iv)
30. (d) Zinc, iron, silver and copper are less reactive than aluminium
    Zn, Fe, Ag and Cu are less reactive than aluminium. Aluminium resides at the top of the activity series. While Zn, Fe, Ag and Cu lies below aluminium in the activity series. Thus, being less reactive than aluminium, they cannot displace Al from its salt solution *i.e.*, $Al_2(SO_4)_3$ solution.
31. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

KNOWLEDGE BOOSTER

Different metals show different reactivities towards oxygen.

32. (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)

33. (c) Assertion (A) is true but Reason (R) is false
Cellulose is not digested by carnivores.

34. (d) Assertion (A) is false but reason (R) is true
The nature of image formed by convex mirror is erect and diminished when object is placed at *C*, image is also formed at *C*, *i.e.*, distance between real object and real image is zero.

35. (c) Assertion (A) is true but Reason (R) is false
Phenolphthalein is a synthetic indicator.

36. (d) oesophagus

37. (c) haemoglobin

38. (c) Valves ensure that the blood does not flow backwards

39. (a) +1 D, +100 cm
Given, power of lens 1, $P_1 = +3.5\,D$
and power of lens 2, $P_2 = -2.5\,D$
So, power of the combination of the lenses,

$$P = P_1 + P_2 = +3.5\,D - 2.5\,D = +1.0D$$

$$\therefore \quad P = +1.0D$$

Now, focal length of the combination

$$= +\frac{1}{1.0\,D} = \frac{1}{+1.0\,m^{-1}}$$

$$= +1m = +100\,cm$$

40. (d) 3.75 cm behind the mirror

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f} \Rightarrow -\frac{1}{15} + \frac{1}{v} = \frac{1}{5}$$

$$\therefore \quad v = \frac{15}{4}\,cm = 3.75\,cm$$

(behind the mirror)

41. (a) there is lack of oxygen
Muscle cells respire anaerobically to produce lactic acid in the scarcity of oxygen during excessive physical exercise.

42. (a) sphincter muscle

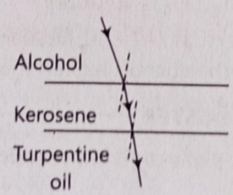
T!P
While studying human alimentary canal, lay stress on the function of sphincter muscle and anal sphincter.

43. (c) +0.5
Here, $u = -60\,cm$, $v = 30\,cm$

$$m = \frac{-v}{u} = -\left(\frac{30}{-60}\right) = \frac{1}{2} = 0.5$$

44. (d) Distance of the flame from the lens = 10 cm
Distance of the screen from the lens = 15 cm
The observation (d) is incorrect. For this observation $v = 15$, *i.e.*, the image is at the focus and the object must be formed at infinity and not 10 cm..

45. (c)



The ray of light bends towards the normal at each interface because it goes from rarer to denser medium.

46. (b) always virtual image
Diverging (concave) lens will always forms a virtual, erect and diminished image.

47. (c) concave mirror
As the image formed concave is erect and magnified so it would be concave mirror.

48. (b) Electrical conductivity in solid state

T!P
Students should learn the properties of ionic compounds.

49. (b) calcium oxide

50. (d) Calcium hydroxide

$$\underset{(X)}{CaO} + H_2O \rightarrow \underset{(Y)}{Ca(OH)_2} + Heat$$

51. (d) Combination reaction

52. (c) $Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$

53. (c) D-Pulmonary vein-Takes oxygenated blood to heart,
A – Artery, carries blood from heart to different body part
B – Capillary, one cell layer thick
C – vein, brings blood from different body parts to heart
D – pulmonary vein, transport oxygenated blood to left atrium.

54. (d) amphibians

55. (d) Whale

56. (c) Right ventricle $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$ Lungs $\xrightarrow[\text{blood}]{\text{Oxygenated}}$ Left auricle

57. (b) blue

KNOWLEDGE BOOSTER
71% of the earth's surface is covered with water. When sunlight reaches the water, the water absorbs lights of all colours in the white light and reflects only blue light. Thus, the earth appears blue from space.

58. (a) longest distance of atmosphere
As the distance between us and Sun is more at the time of sunrise and sunset.

59. (c) scattering of light by air molecules
Due to the more scattering of blue colour by molecules of air.

60. (a) blue colour is scattered away and red colour reaches our eye
Red light being of largest wavelength reaches our eye where as blue light (short wavelength) is scattered away by the particles.