Genesis Educates

"There is no element of genius Without some form of madness"

10th CBSE Science Test (Mock-1)

Time : 1.5 Hrs. **M.M.: 60**

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 1 mark.
6. There is no negative marking.

SECTION A

(Section – A consists of 24 questions (SI. No. 1 to 24). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.)

1. In a chemical reaction between sulphuric acid and barium chloride solution the white precipitates formed are of:
   a. Hydrochloric acid b. Barium sulphate
   c. Chlorine d. Sulphur

2. The respiration process during which glucose undergoes slow combustion by combining with oxygen in the cells of our body to produce energy, is a kind of:
   a. Exothermic process b. Endothermic process
   c. Reversible process d. Physical process

3. Before burning in air, the magnesium ribbon is cleaned by rubbing with a sand paper to:
   a. Make the ribbon surface shinier
   b. Remove the layer of magnesium oxide from the ribbon surface
   c. Remove the layer of magnesium carbonate from the ribbon surface
   d. Remove the moisture from the ribbon surface

4. In a chemical reaction between sulphuric acid and barium chloride solution the white precipitates formed are of:
   a. Hydrochloric acid b. Barium sulphate
   c. Chlorine d. Sulphur

5. The respiration process during which glucose undergoes slow combustion by combining with oxygen in the cells of our body to produce energy, is a kind of:
   a. Exothermic process b. Endothermic process
   c. Reversible process d. Physical process

6. A chemical reaction does not involve:
   a. Formation of new substances having entirely different properties than that of the reactants
   b. Breaking of old chemical bonds and formation of new chemical bonds
   c. Rearrangement of the atoms of reactants to form new products
   d. Changing of the atoms of on element into those of another element to form new products

7. One of the following processes does not involve a chemical reaction. That is:
   a. Melting of candle wax when heated b. Burning of candle wax when heated
   c. Digestion of food in our stomach d. Ripening of banana

8. It is necessary to balance a chemical equation in order to satisfy the law of:
   a. Conservation of motion b. Conservation of momentum
   c. Conservation of energy d. Conservation of mass

9. All the methods mentioned below can be used to prevent the food from getting rancid except:
   i. Storing the food in the air-tight containers
   ii. Storing the food in refrigerator
   iii. Keeping the food in clean and covered containers
   iv. Always touching the food with clean hands
   a. (i) and (ii) b. (i) and (iii) c. (i), (iii) and (iv) d. (iii) and (iv)

10. Rusting of iron involves a chemical reaction which is a combination of:
    a. Reduction as well as combination reactions
    b. Oxidation as well as combination reactions
    c. Reduction as well as displacement reactions
    d. Oxidation as well as displacement reactions

11. Saprotrophs are called as decomposers because
    (a) they accumulate the dead & decay (b) they regulate the dead & decay
    (c) they anabolize the dead & decay (d) they catabolise the dead & decay

12. Sulphur bacteria, Nitrogen bacteria are the members opted the nutrition of type
    (a) phototrophic (b) saprophytic (c) chemotrophic (d) symbiotic

13. Breathing differ from respiration as
    (a) it exchange O_2 and CO_2 (b) It produces energy
    (c) It is the metabolic process (d) both (B) and (C)

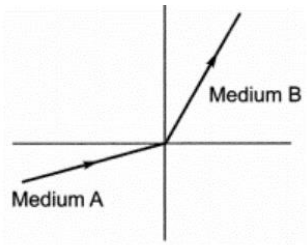
14. The breadown of 6 carbon sugar in cell takes place
    (a) kerb cycle (b) Both (A) and (C)
    (c) glycolysis (d) None of these

15. Bicuspid value guards the opening in mammals between
    (a) left atrium and left ventricle (b) pulmonary vein and left auricle
    (c) stomach and intestine (d) right atrium and right ventricle

16. Heart covering is
(a) peritoneum (b) pleural membrane
(c) pericardium (d) visceral membrane

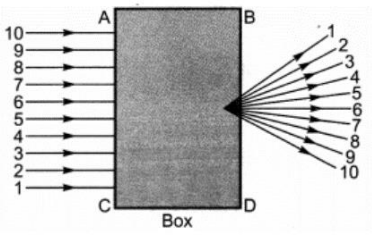
17. Focal length of plane mirror is
A. infinite B. Zero C. Negative D. None of these

18. In the given figure, the refractive index of medium B with respect to medium A is



A. greater than unity B. less than unity
C. equal to unity D. zero

19. A beam of light is incident through the holes on side A and emerges out of the holes on the other face of the box as show in the figure. Which of the following could be inside the box?



A. Concave lens B. Rectangular glass slab
C. Prism D. Convex lens

20. A10 mm long awl pin is placed vertically in front of a concave mirror. A 5 mm long image of the awl pin is formed at 30 cm in front of the mirror. The focal length of this mirror is
A.– 30 cm B. – 20 cm C. – 40 cm D. – 60 cm

21. A child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top.
A. Plane, convex and concave B. Convex, concave and plane
C. Concave, plane and convex D. Convex, plane and concave

22. If a ray of light strikes a polished wall at 40° with wall. What will be the angle of deviation between incident and reflected ray
A. 90° B. 80° C. 100° D. 120°

23. Two thin lenses, one of focal length +60 cm and the other of focal length -20 cm are kept in contact. Their combined focal length is
A. -30 cm B. +30 cm C. -15 cm D. +30 cm

24. A hole is made in a convex lens. Then :
A. A hole appears in the image B. Image size decreases
C. Image intensity decreases D. No change

SECTION B

(Section – B consists of 24 questions (SI. No. 25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.)

25. Which of the following gases is used in the storage of fat and oil containing foods for a long time?
a. Carbon dioxide gas b. Nitrogen gas
c. Oxygen gas d. Neon gas

26. The neutralization reaction between an acid and a base is a type of:
a. Double displacement reaction b. Displacement reaction
c. Addition reaction d. Decomposition reaction

27. Zinc granules on treating with an acid X, form the zinc sulphate (ZnSO4) salt along with the evolution of a gas Y which burns with a pop sound when brought near to a burning candle. Identify the acid X and gas evolved Y.
a. X- Sulphuric acid and Y- Oxygen gas
b. X- Hydrochloric acid and Y- Oxygen gas
c. X- Sulphuric acid and Y- Hydrogen gas
d. X- Hydrochloric acid and Y- Hydrogen gas

28. Which of the following phenomena occur, when a small amount of acid is added to water?
i. Ionisation ii. Neutralisation iii. Dilution iv. Salt formation
a. (i) and (ii) b. (i) and (iii) c. (ii) and (iii) d. (ii) and (iv)

29. Identify the products of the following reaction:
$CaCO3 + 2HCl \longrightarrow$
a. Calcium hydrogencarbonate and chlorine gas
b. Calcium chloride and water
c. Calcium oxide, carbon dioxide and water
d. Calcium chloride, carbon dioxide and water

30. Which of the following pairs will give displacement reactions?
(a) NaCl solution and copper metal
(b) MgCl2 solution and aluminium metal
(c) FeSO4 solution and silver metal
(d) AgNO3 solution and copper metal

<u>Question No. 31 to 34</u> consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

A. Both A and R are true and R is the correct explanation of A
B. Both A and R are true and R is not the correct explanation of A
C. A is true but R is false
D. A is False but R is true

31. **Assertion :** Pungent smelling gas is produced when sulphur burns in air.
Reason : Sulphur trioxide is formed on reaction of sulphur with oxygen.

32. **Assertion :** The chemical formula of bleaching powder is CaOCl.
Reason : Calcium oxide reacts with chlorine to form bleaching powder.

33. **Assertion :** Resins and gums are stored in old xylem tissue in plants.
Reason : Resins and gums facilitate transport of water molecules.

34. **Assertion** : Incident light is reflected in only one direction from a smooth surface.
Reason : Since the angle of incidence and the angle of reflection are same, a beam of parallel rays of light falling on a smooth surface is reflected as a beam of parallel light rays in one direction only.

35. An element X is soft and can be cut with the help of a knife. It is very reactive to air and cannot be kept open in the air. It reacts vigorously with water. Identify the element from the following:
(a) Mg (b) Na (c) P (d) Ca

36. Identify the correct path of urine in the human body
(a) Kidney → urinary bladder → urethra → ureter
(b) Urinary bladder → ureter → kidney → urethra
(c) Kidney → ureter → urethra → urinary bladder
(d) Kidney → ureter → urinary bladder → urethra

37. Which is the correct sequence of body parts in the human alimentary canal?
(a) Mouth → stomach → small intestine → large intestine → oesophagus
(b) Mouth → oesophagus → stomach → small intestine → large intestine
(c) Mouth → stomach → oesophagus → small intestine → large intestine
(d) Mouth → oesophagus → stomach → large intestine → small intestine

38. In which group of the organism the food material is broken down outside the body?
(a) Mushroom, green plants, amoeba (b) Yeast, mushroom, bread mould
(c) Paramercoum, amoeba, cuscuta (d) Cuscuta, lice, tapeworm

39. Refractive index of a material for infrared light is :
A. Equal to that for red colour of light B. Equal to that for ultraviolet light
C. Less than that for ultraviolet light D. Greater than that for ultraviolet light

40. Which of the following statements is/are true?
A. A convex lens has 4 dioptre power having a focal length 0.25 m
B. A convex lens has -4 dioptre power having a focal length 0.25 m
C. A concave lens has 4 dioptre power having a focal length 0.25 m
D. A concave lens has – 4 dioptre having a focal 0.25 m

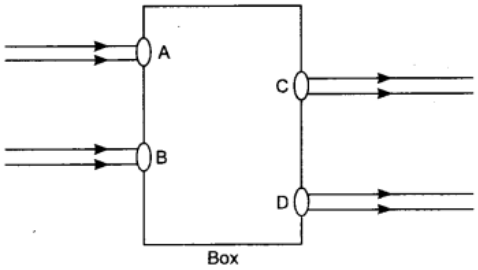
41. Which of the following statemts about autotrophs is incorrect?
(a) They synthesize carbohydrates by using carbon dioxide, water in presence of sunlight and chlorophyll
(b) They store carbohydrates in form of starch
(c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight
(d) They form the first trophic level in the food chain

42. Which of the statements is correct regarding bile?
(a) secreted by duct and stored in liver
(b) secreted by liver and stored in bile duct
(c) secreted by Liver and Stored in Gall Bladder
(d) secreted by gall bladder and stored in liver

43. The focal length of a concave mirror is 50 cm. To obtain an inverted image two times the size of the object the object should be placed at :
A. 50 cm B. 63 cm C. 72 cm D. 75 cm

44. A man runs towards the plane mirror at 2 m/s. The relative speed of his image with respect to him will be:
A. 4 ms^{-1} B. 2 ms^{-1} C. 8 ms^{-1} D. 10 ms^{-1}

45. Beams 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?



A. A rectangular glass slab B. A convex lens.
C. A concave lens D. A prism

46. The coloured light that reflects most while passing through a prism is :
A. yellow B. Violet C. Blue D. Red

47. When an object moves towards a convex lens the size of image _____.
A. Decreases B. Increases
C. First decreases then increases D. Remains the same

48. A gas is evolved when Dil. Sulphuric Acid reacts with Zinc granules. It gives a pop sound when lit match stick is introduced near it. Identify the gas?
A. Nitrogen B. Hydrogen C. Oxygen D. Carbon dioxide

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.)

Case study

Salt of a strong acid and strong base is neutral with a pH value of 7. NaCl common salt is formed by a combination of hydrochloride and sodium hydroxide solution. This is the salt that is used in food. Some salt is called rock salts bed of rack salt were formed when seas of bygone ages dried up. The common salt thus obtained is an important raw material for various materials of daily use, such as sodium hydroxide, baking soda, washing soda, bleaching powder.

49. Which of the following does not form an acidic salt?
a. Phosphoric acid b. Carbonic acid
c. Hydrochloric acid d. Sulphuric acid

50. Which of the following salts has no water of crystallization?
a. Blue vitriol b. Washing soda c. Baking soda d. Gypsum

51. The formula of baking soda is
a. K2CO b. KHCO3 c. NaHCO3 d. Na2CO3

52. Which of the following is treated with chlorine to obtain bleaching powder
a.CaSO4 b. Ca(OH)2 c. Mg(OH)2 d. KOH

Case study

All living cells need nutrients, O, and other essential substances. Also, the waste and harmful substances need to be removed continuously for healthy functioning of cells. So, a well developed transport system is mandatory for living organisms. Complex organisms have special fluids within their bodies to transport such materials. Blood is the most commonly used body fluid by most of the higher organisms. Lymph also helps in the transport of certain substances.

53 Which of the following does not exhibit phagocytic activity?
(a) Monocytes (b) Neutrophils (c) Basophil (d) Macrophage

54 Amount of blood corpusles in changed in dengue fever. One of the common symptoms observed in people infected with dengue fever is
(a) significant decrease in RBC count
(b) significant decrease in WBC count
(c) significant decrease in platelets count
(d) significant increase in platelets count.

55. Why are WBCs called soldiers of the body?
(a) They are capable of squeezing out of blood capillaries.
(b) They are manufactured in bone marrow.
(c) They fight against disease causing germs.
(d) They have granular cytoplasm with lobed nucleus.

56. Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.
(a) Erythrocytes (b) Neutrophils (c) Leucocytes (d) Thrombocyte

CASE STUDY

The lenses forms different types of images when object placed at different locations. When a ray is incident parallel to the principal axis, then after refraction, it passes through the focus or appears to come from the focus.
When a ray goes through the optical centre of the lens, it passes without any deviation.
If the object is placed between focus and optical center of the convex lens, erect and magnified image is formed.
As the object is brought closer to the convex lens from infinity to focus, the image moves away from the convex lens from focus to infinity. Also the size of image goes on increasing and the image is always real and inverted.
A concave lens always gives a virtual, erect and diminished image irrespective to the position of the object.

57. The location of image formed by a convex lens when the object is placed at infinity is
A. at focus B. at 2F
C. at optical center D. between Fand 2F

58. When the object is placed at the focus of concave lens, the image formed is
A. real and smaller B. virtual and inverted
C. virtual and smaller D. real and erect

59. The size of image formed by a convex lens when the object is placed at the focus of convex lens is
A. small B. point in size
C. highly magnified D. same as that of object

60. When the object is placed at 2F in front of convex lens, the location of image is
A. at F B. at 2 F on the other side
C. at infinity D. between F and optical center

10th CBSE Science Test-2

Time Allowed: 90 Minutes *Maximum Marks: 40*

General Instructions: Same instructions as given in the Sample Paper 1.

SECTION - A

(Section A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.)

1. In the reaction $PbS + 2H_2O_2 \rightarrow PbSO_4 + 4H_2O$, select the option that correctly identifies substance oxidized and substance reduced.

(a) PbS is oxidized and H_2O is reduced
(b) $PbSO_4$ is oxidized and H_2O_2 is reduced
(c) PbS is oxidized and H_2O_2 is reduced
(d) $PbSO_4$ is reduced and H_2O_2 is oxidized

2. The chemical formula of few hydrated salts is given in the table below.

	Name of salt	Chemical formula
(I)	Gypsum	$CaSO_4.2H_2O$
(II)	Washing soda	$Na_2CO_3.5H_2O$
(III)	Copper Sulphate	$CuSO_4.10H_2O$
(IV)	Plaster of Paris	$CaSO_4.\frac{1}{2}H_2O$

Select the rows containing the incorrect number of molecules of water of crystallization in each salt.

(a) Both (I) and (II)
(b) Both (II) and (III)
(c) Both (I) and (III)
(d) Both (III) and (IV)

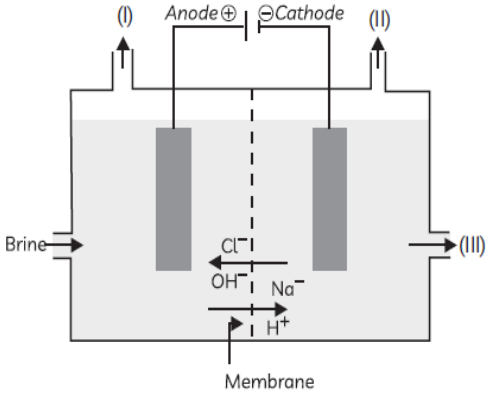
3. Hydrogen is placed along with Alkali metals in the modern periodic table though it shows non-metallic character

(a) as Hydrogen has one electron & readily loses electron to form negative ion.
(b) as Hydrogen can easily lose one electron like alkali metals to form positive ion.
(c) as Hydrogen can gain one electron easily like Halogens to form negative ion.
(d) as Hydrogen shows the properties of non-metals.

4. Which of the following equations correctly represents the physical states of reactants and products?

(a) $2FeSO_{4(aq)} \longrightarrow Fe_2O_{3(aq)} + SO_{2(g)} + SO_{3(g)}$
(b) $2FeSO_{4(s)} \longrightarrow Fe_2O_{3(s)} + SO_{2(g)} + SO_{3(g)}$
(c) $2FeSO_{4(s)} \longrightarrow Fe_2O_{3(aq)} + SO_{2(g)} + SO_{3(g)}$
(d) $2FeSO_{4(aq)} \longrightarrow Fe_2O_{3(s)} + SO_{2(g)} + SO_{3(g)}$

5. The figure below depicts the Chlor alkali process.

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Select the row containing correct identification of the products labelled as I, II and III and their use.

	(I)	(II)	(III)
(a)	Cl_2	H_2	NaOH
(b)	Cl_2	NaOH	H_2
(c)	H_2	Cl_2	NaOH
(d)	H_2	NaOH	Cl_2

6. Observe the table given below and match the reaction given in column I with the type of reaction given in column II.

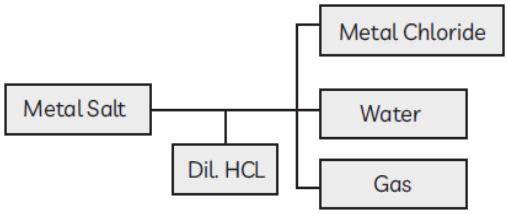
Column I	Column II
(A) $Zn_{(s)} + CuSO_{4(aq)} \rightarrow ZnSO_{4(aq)} + Cu_{(s)}$	(I) Double Displacement Reaction
(B) $NH_{3(g)} + HCl_{(g)} \rightarrow NH_4Cl_{(s)}$	(II) Displacement Reaction
(C) $AgNO_{3(aq)} + NaCl_{(aq)} \rightarrow AgCl_{(s)} + NaNO_{3(aq)}$	(III) Decomposition Reaction
(D) $2KClO_{3(s)} \rightarrow 2KCl_{(s)} + 3O_{2(g)}$	(IV) Combination Reaction

(a) (A)- (I) ; (B) – (IV) ; (C) – (II) ; (D) – (III)
(b) (A)- (I) ; (B) – (IV) ; (C) – (III) ; (D) – (II)
(c) (A)- (II) ; (B) – (IV) ; (C) – (III) ; (D) – (I)
(d) (A)- (II) ; (B) – (IV) ; (C) – (I) ; (D) – (III)

7. During reaction of which metals with cold water, hydrogen gas catches fire?
(I) Sodium
(II) Calcium
(III) Magnesium
(IV) Potassium

(a) Both (I) and (II)
(b) Both (III) and (IV)
(c) Both (I) and (IV)
(d) Both (II) and (IV)

8. Observe the reaction between metal salt and dilute HCl and select the correct combination from the table given:



	Metal Salt	Gas
(I)	Calcium Chloride	H_2
(II)	Calcium Carbonate	CO_2
(III)	Sodium Hydrogen Carbonate	CO_2
(IV)	Sodium Carbonate	H_2

(a) Both (I) and (II)
(b) Both (II) and (III)
(c) Both (I) and (III)
(d) Both (III) and (IV)

9. The effect of gas formed by heating sulphur powder on litmus paper is:
(a) It turns both dry blue litmus paper and moist blue litmus paper red.
(b) It turns dry blue litmus paper red but has no effect on moist blue litmus paper.
(c) It has no effect on dry blue litmus paper but turns moist blue litmus paper red.
(d) It has no effect on both dry blue litmus paper and moist blue litmus paper.

10. Which of the following metals form an amphoteric oxide?
(a) Al (b) Na
(c) Cu (d) Ca

11. Fungi are:
(a) Heterotrophic (b) Autotrophic
(c) Saprophytic (d) Parasitic

12. In humans, there are ..... pairs of salivary glands.
(a) Two (b) Three
(c) Six (d) Four

13. Which pancreatic enzyme helps in digesting proteins?
(a) Pepsin (b) Trypsin
(c) Chylomicrons (d) Both (a) and (b)

14. Why are arteries thick walled?
(a) They are under low pressure
(b) So that blood does not excude from the vessels
(c) They are under high pressure
(d) Both (b) and (c)

15. Name the cartilaginous flap which closes the opening of wind pipe durings swallowing:
(a) Glottis (b) Epiglottis
(c) Gullet (d) Epivalve

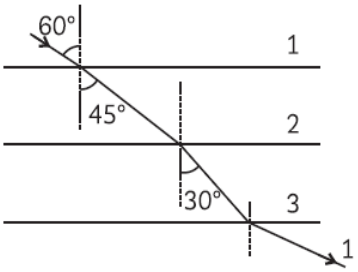
16. Study the flow chart given below representing the transport of oxygen and carbon dioxide in human beings.

Air → Nostril → W → Windpipe → X → Lungs → Y → Blood → Z

Choose the correct option in the given table:

	W	X	Y	Z
(a)	Pharynx	Bronchi	Alveoli	Tissue
(b)	Alveoli	Tissue	Bronchi	Pharynx
(c)	Tissue	Alveoli	Pharynx	Bronchi
(d)	Bronchi	Pharynx	Alveoli	Tissue

17. A ray of light is incident obliquely on medium 1 and then passes through two media namely 2 and 3 before emerging into medium 1 again.



The refractive index of medium 3 with respect to medium 1 is:

(a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$

(c) $\frac{1}{\sqrt{2}}$ (d) $\sqrt{3}$

18. The power of a lens of focal length 20 cm in diopter is:

(a) 0.25 D (b) 2.0 D

(c) 5.0 D (d) 0.05 D

19. If the magnification of a lens has a positive value, the image formed is:

(a) inverted

(b) real and inverted

(c) real

(d) Virtual and erect

20. An object is placed 40 cm from the concave mirror with a focal length of 20 cm. The image formed is:

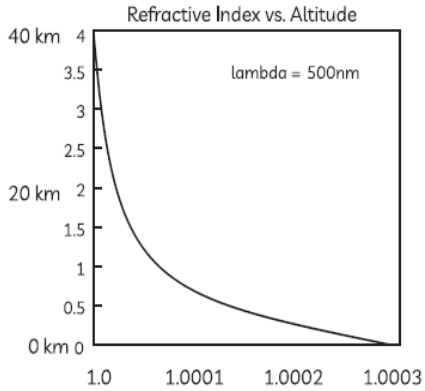
(a) behind the mirror

(b) between the mirror and focus

(c) at focus

(d) centre of curvature of mirror

21. The graph below shows variation of refractive index of earth's atmosphere with altitude.



Select the correct observations:

(I) The refractive index of earth is gradually increasing with decrease in altitude.

(II) Star light will get scattered more on entering the earth's atmosphere before reaching earth's surface.

(III) Star light will get bend more away from the normal as it reaches the earth's surface.

(IV) Star light will get bend more towards the normal as it reaches the earth's surface.

(a) Both (I) and (III)

(b) Both (I) and (IV)

(c) Both (II) and (III)

(d) Both (II) and (IV)

22. Velocity of light in air is 3×10^8 m/s and its velocity in a medium X is 1.0×10^8 m/s. Then, refractive index of medium X is:

(a) 3 (b) 5

(c) 0.5 (d) 2

23. Which of the following phenomenons of light are involved in the formation of ranibow?

(a) Reflection, refraction and dispersion

(b) Refraction, dispersion and total internal reflection

(c) Refraction, dispersion and internal reflection

(d) Dispersion, scattering and total internal reflection

24. At the traffic signals, red light is used for stop due to the reason that it can be seen from a distance. This phenomenon is known as:

(a) Refraction

(b) Diffraction

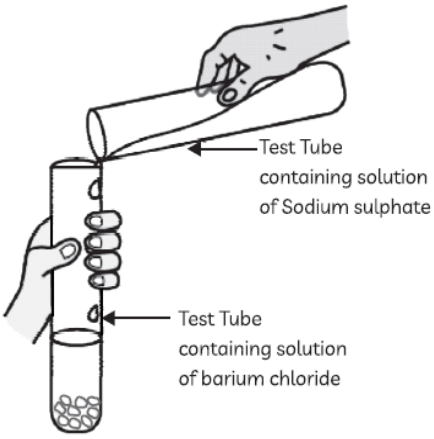
(c) scattering

(d) Total internal reflection

SECTION - B

(Section B consists of 24 questions (Q. No. 25 to 48). Attempt underline questions from this section. The first attempted 20 questions would be evaluated.)

25. As red light has highest wavelength to visible spectrum, therefore red lights scatters least. Identify the precipitate formed and the type of reaction of reaction in the following experiment:



	Precipitate formed	Type of Reaction
(a)	Barium Sulphate	Double Decomposition Reaction
(b)	Barium Sulphate	Double Displacement Reaction
(c)	Sodium Chloride	Displacement Reaction
(d)	Sodium Chloride	Double Displacement Reaction

26. Calcium phosphate is present in tooth enamel. What happen when we consume sweets?
(a) We suffer from diabetes
(b) Dissolution of enamel
(c) No effect on teeth is observed
(d) Teeth become weak from roots

27. Which of the following show a chemical reaction?
(a) $MgSO_4 + Fe$ (b) $ZnSO_4 + Fe$
(c) $CaSO_4 + Pb(d)$ $CuSO_4 + Fe$

28. Which of the following metals melt when kept on your palm?
(I) Sodium (II) Mercury
(III) Caesium (IV) Gallium
(a) (I) and (III) (b) (II) and (IV)
(c) (III) and (IV) (d) (II) and (III)

29. Which of the following can be used as an acid–base indicator by a visually impaired student?
(I) Red cabbage lead extract
(II) Turmeric
(III) Vanilla essence
(IV) Onion extract
(a) Both (I) and (II) (b) Both (II) and (III)
(c) Both (III) and (IV) (d) (I), (III) and (IV)

30. Which acids are present in oranges and spinach?
(a) Citric acid in both
(b) Oxalic acid in both
(c) Oxalic acid and citric acid respectively
(d) Citric acid and oxalic acid respectively

Question No. 31 to 34 consist of two statements– Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

31. Assertion (A): Quicklime reacts vigorously on dissolving in water releasing a large amount of heat.
Reason (R): This chemical reaction is an exothermic reaction.

32. Assertion (A): Food cans are not coated with zinc.
Reason (R): Because zinc is less reactive than tin.

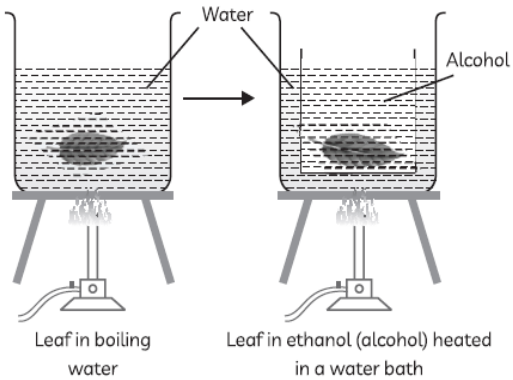
33. Assertion (A): Diffusion process does not meet high energy requirement of multicellular organism.
Reason (R): Diffusion is a fast process but only occurs at the surface of the body.

34. Assertion (A): In prism, higher the refractive index, lower will be the angle of deviation.
Reason (R): The angle of deviation is inversely proportional to the angle of the prism.

35. Identify the option from the table given below that correctly represents the cation and anion in the formation of Magnesium Chloride.

Option	Cation	Anion
(a)	$[Mg^{+}]$	$[Cl^{-}]$
(b)	$[Mg^{+}]$	$2[Cl^{-}]$
(c)	$[Mg^{2+}]$	$2[Cl^{-}]$
(d)	$[Mg^{2+}]$	$[Cl^{2-}]$

36. *In the activity to demonstrate that chlorophyll is essential for photosynthesis, a plotted plant with variegated leaves is first taken and kept in a dark room for three days after which it is kept in sunlight for about six hours. The leaf is then plucked, the green areas traced and then the leaf is first dipped in boiling water for a few minutes and then immersed in a beaker containing alcohol as shown in diagram below:*



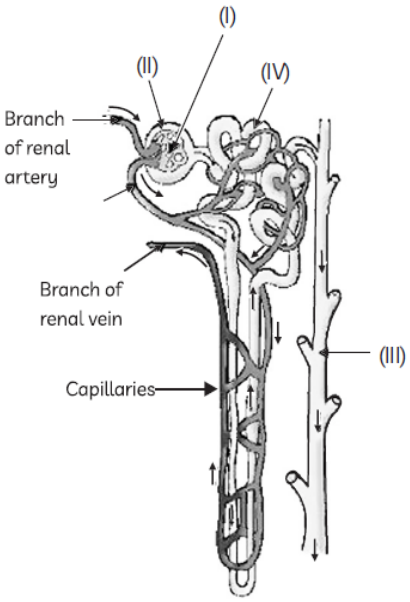
The reason why leaf is immersed in hot alcohol is to:

(a) remove chlorophyll
(b) stop photosynthesis
(c) dissolve starch
(d) dissolve phloem

37. The part of the alimentary canal where complete digestion of food takes place is:

(a) Mouth cavity (b) Stomach
(c) Liver (d) Small intestine

38. Observe the diagram of structure of nephron.

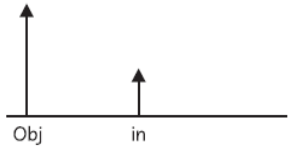


Match the labeling referred in column I and correlate with the function/structure in column II.

Column I	Column II
(I)	(A) Double walled cup shaped structure present at the upper end of the nephron.
(II)	(B) Selective reabsorp-tion of glucose, amino acids, water, salt etc
(III)	(C) Bundle of blood capillaries present in the Bowman's capsule
(IV)	(D) Collects urine from the nephrons

(a) (I) – (D); (II) – (B); (III) – (A); (IV) – (A)
(b) (I) – (A); (II) – (C)); (III) – (D); (IV) – (B)
(c) (I) – (C); (II) – (D); (III) – (B); (IV) – (A)
(d) (I) – (C); (II) – (A); (III) – (D); (IV) – (B)

39. A student marked the position of an object and its image formed by a lens as shown in the figure below:



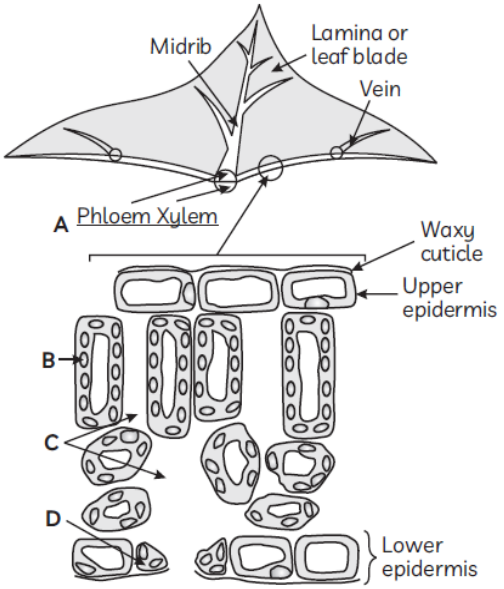
Select the row containing the correct identification of lens and position of object:

Option	Type of lens	Position of Object
(a)	Concave lens	Between infinity and Optical Centre of lens
(b)	Concave lens	Between Focus and optical Centre of lens
(c)	Convex lens	Between infinity and 2F
(d)	Convex lens	Between Focus and optical Centre of lens

40. When an object is placed in front of a converging lens, a magnified erect image is formed. The distance of the object from the lens will be:

(a) Equal to two focal lengths
(b) Between one and two focal lengths
(c) Equal to one focal length
(d) Less than one focal length

41. The following diagram show the cross-section of leaf.



Choose the correct option with respect to the function of labelled parts:

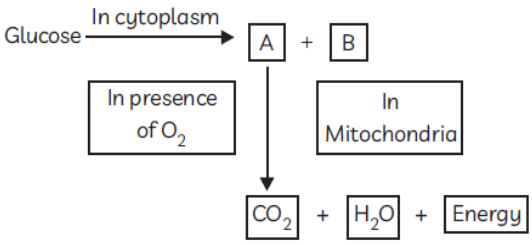
(a) A- Helps in transportation of gases throughout the length of plants

(b) B- Convert chemical energy into light energy via the photosynthetic process.

(c) C- Allows gaseous exchange between the leaf and the outside atmosphere through the stomata

(d) D- Guard cells from pathogen attacks

42. *The glucose breakdown pathway in case of aerobic respiration is shown in the flow chart given below.*

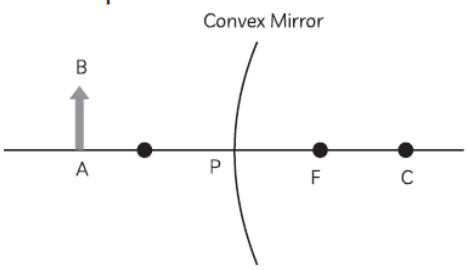


The breakdown of pyruvate to give carbon dioxide, water and energy takes place in

(a) cytoplasm (b) mitochondria

(c) chloroplast (d) nucleus.

43. Look at the figure given below and select the correct option.



(a) Image formed is virtual, erect and magnified

(b) Image formed is virtual, erect and diminished

(c) Image formed is real, inverted and magnified

(d) Image formed is real, inverted and diminished.

44. A convex lens of local length 20 cm is placed in contact with a concave lens of local length 40 cm. The local length of this combination of lenses will be:

(a) + 40 cm

(b) + 20 cm

(c) – 40 cm

(d) – 20 cm

45. To obtain an image of magnification (–3), an object should be in which position in case of concave mirror?

(a) Between F and 2 F

(b) At F

(c) Between F and C

(d) Beyond 2 F

46. Why the sun appears white at noon?

(a) scattering is reduced if the distance to be travelled in air is increased.

(b) scattering is increased if the distance to be travelled in air is reduced.

(c) scattering is reduced if the distance to be travelled in air is reduced.

(d) the sun is overhead at noon

47. Which colour suffers least deviation on passing through a prism?

(a) Blue

(b) Red

(c) White

(d) Violet

48. A compound is formed between A and B by transfer of electrons from A to B. Which of the following properties will be shown by the compound?

(I) It has high melting point

(II) It occurs as solid

(III) It is generally malleable

(IV) It conducts electricity in solid state.

(a) Both (I) and (II)

(b) Both (I) and (III)

(c) Both (II) and (IV)

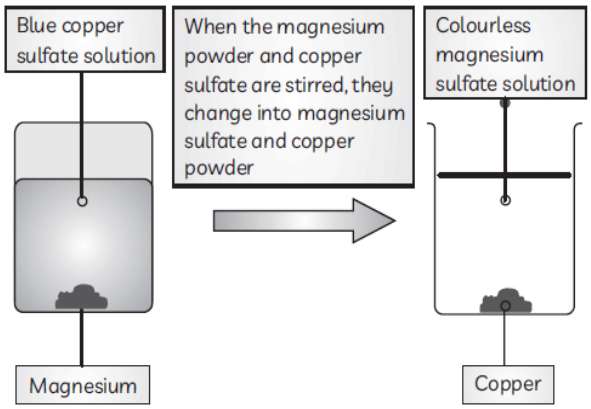
(d) Both (III) and (IV)

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.)

Q. 49 to 52 are based on Case Study–1

Case 1:



Some metals are more reactive than others. In an experiment, a strip of metal is added to a solution of a compound of another metal. A more reactive metal displaces (pushes out) a less reactive metal from its compound.

49. On keeping the iron nails dipped in copper sulphate solution for about 30 minutes the changes you will observe is:

(a) Iron nails become brownish in colour and the blue colour of copper sulphate solution fades.

(b) Iron nails become brownish in colour and the blue colour of copper sulphate solution changes to orange.

(c) Iron nails become bluish in colour and the blue colour of copper sulphate fades.

(d) No reaction takes place.

50. When hydrogen sulphide gas is passed into an aqueous solutions of copper sulphate?

(a) Displacement reaction takes place

(b) Black precipitate of copper sulphide is obtained

(c) Yellow precipitate of copper oxide is obtained

(d) Both (a) and (b)

51. Displacement reaction is also known as:

(a) precipitation reaction

(b) combination reaction

(c) substitution reaction

(d) none of the above

52. On adding dilute hydrochloric acid to the reaction mixture of sodium sulphate and barium chloride, white precipitate disappears. Which of the following is correct explanation?

(a) HCl decomposes barium sulphite

(b) barium chloride is insoluble in water

(c) displacement reaction takes place

(d) barium sulphite is a salt of strong acid

Q. 53 to 56 are based on Case Study–2

Case 2: *The human heart, is an organ that pumps blood throughout the body via circulatory system, supplying oxygen and nutrients to the tissues and removing carbon dioxide and other wastes. A heart attack occurs when the flow of blood to the heart is blocked. The blockage is most often a buildup of fat, cholesterol and other substances, which form a plaque in the arteries that feed the heart (coronary arteries). The plaque eventually breaks aways and form a clot. The interrupted blood flow can damage or treatment has improved dramatically over the years.*

Not all people who have heart attacks have the same symptoms or have the same severity of symptoms'

53. The function of heart is:

(a) To lubricate the food for swallowing and helps in digestion of starch.

(b) To receive blood from the veins and pumps it into the arteries.

(c) To carry digested and absorbed fat from intestine and drains excess fluid from extra cellular space back into the blood.

(d) To receive blood from the arteries and pump if into the veins

54. Which of the following statement is not correct?

(a) Human heart allows mixing of oxygenated and deoxygenated blood.

(b) Deoxygenated blood poured into right artium of heart.

(c) Human heart does not allow mixing of deoxygenatcd and oxygenated blood.

(d) Both (b) and (c) are incorrect.

55. Which of the following statement(s) is incorrect?

(a) Vein are thin walled

(b) Arteries are thick walled

(c) Capillaries are thick walled

(d) Both (b) and (c) are incorrect.

56. Which of the following are common heart attack symptoms?

(a) Nausea or heartburn

(b) Shortness of breath, Cold and Caugh

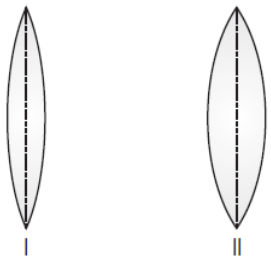
(c) Chest tightness and chest pain

(d) Both (a) and (c)

Q. 57 to 60 are based on Case Study–3

Case 3: *Lenses made of transparent materials such as glass or plastic with curved surfaces. Diverging lenses are thicker at their edges than at their centres and make light rays passing through them spread out. Converging lenses are thicker in middle than at edges and make light rays passing through them focus at a point.*

57. *Abhishek uses two lenses I and II of same size and same material as shown P_1 and P_2 are the powers of A and B. An object is kept at the same distance from the lenses between F and 2F of each lens on the principal axis in turn Let I_1 and I_2 be the image formed by two lenses respectively. Which one of the following statements is correct for the images formed?*



(a) Distance or image I_2 will be less than distance or image I_1 from the lens

(b) Size or image I_1 will be equal to size or image I_2.

(c) Distance of image I_2 will be greter than distance or image I_1 irom the lens.

(d) Size of image I_1 wil be lesser than size or image I_2.

58. For lenses I and II :

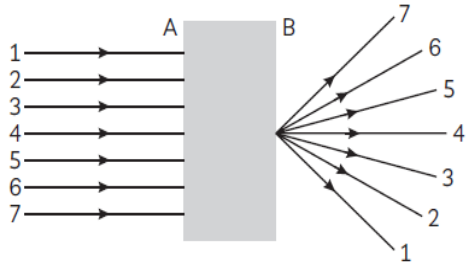
(a) $P_1 = P_2$

(b) $P_1 < P_2$

(c) $P_1 > P_2$

(d) P_1 is positive and P_2 is negative

59. A beam of light is incident on the box through the holes on side A and emerges out of the holes on the side B of the box:



Which of the following is present the box?

(a) Concave lens

(b) Rectangular glass plate

(c) Prism

(d) Convex lens

60. Sakshi conducts an experiment to produce an image of an object on a screen which is placed at 20 cm from the lens. She uses a convex lens of focal length 15 cm produce the sharpest image?

(a) 20 cm in front of the lens

(b) 8 cm in front of the lens

(c) 15 cm in front of the lens

(d) 60 cm in front of the lens

10th CBSE Science Test-3

Time Allowed: 90 Minutes *Maximum Marks: 40*

General Instructions: Same instructions as given in the Sample Paper 1.

SECTION - A

(Section A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.)

1. Which of the following is not a chemical change?

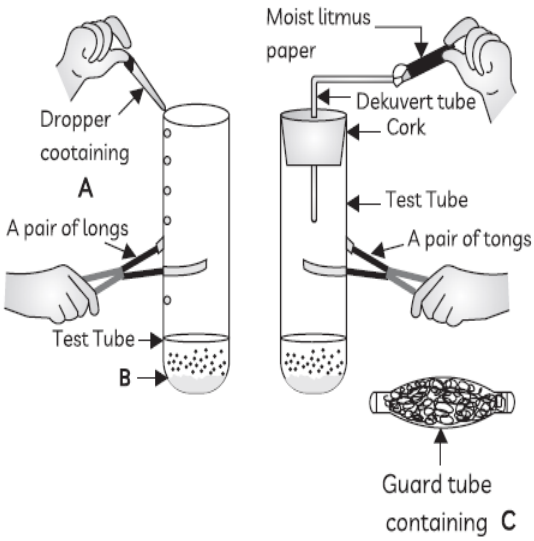
(a) Getting salt from sea water

(b) Ripening of fruits and vegetables

(c) Formation of curd from milk

(d) Burning of coal

2. Hydrogen chloride gas is prepared by the reaction between substances labelled A and B in the figure below. On a humid day, the gas is usually passed through a guard tube containing C.



Identify the substances A, B and C and select the row containing the correct labelling of the substances A, B and C.

	A	B	C
(a)	H_2SO_4	NaCl	$CaCl_2$
(b)	H_2SO_4	Na_2CO_3	$CaCl_2$
(c)	$NaHCO_3$	NaCl	KOH
(d)	Na_2CO_3	H_2SO_4	KOH

3. An element X having atomic number 13 forms a compound with element Y having atomic number 9. The cations and anions formed will be:

(a) $3[X^+]$ and $[Y^{3-}]$ (b) $[X^{3+}]$ and $3[Y^-]$

(c) $3[X^+]$ and $3[Y^-]$ (d) $[X^{3+}]$ and $[Y^{3-}]$

4. The table below lists some metals in column I and the colour of coating or powder on their surface due to corrosion on them in column II.

Column I	Column I
(I) Iron	(A) White
(II) Aluminium	(B) Green
(III) Copper	(C) Black
(IV) Silver	(D) Reddish brown

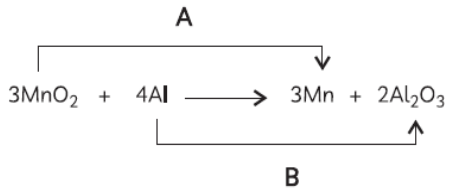
Match the metals given in column I with the correct change mentioned in column II:

(a) (I) – (D); (II) – (C); (III) – (B); (IV) – (A)

(b) (I) – (A); (II) – (D); (III) – (B); (IV) – (C)
(c) (I) – (B); (II) – (A); (III) – (D); (IV) – (C)
(d) (I) – (D); (II) – (A); (III) – (B); (IV) – (C)

5. Baking soda is:
(a) sodium hydrogen carbonate
(b) sodium hydroxide
(c) sodium carbonate decahydrate
(d) calcium oxychloride

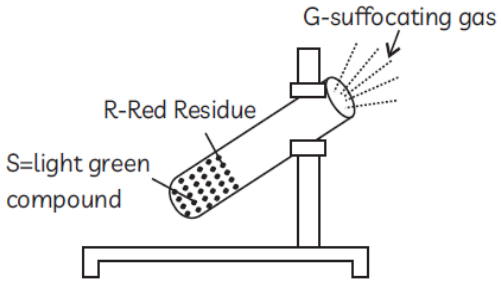
6. Study the figure below showing the reaction between Manganese dioxide and aluminium.



Select the row containing the correct process marked A and B and substances undergoing the change from the table below:

	A	B	Substance oxidized	Substance reduced
(a)	Oxidation	Reduction	MnO_2	Mn
(b)	Oxidation	Reduction	Al	Al_2O_3
(c)	Reduction	Oxidation	Al	MnO_2
(d)	Reduction	Oxidation	MnO_2	Al

7. Two gases 'G' having suffocating odour are obtained when a green solid 'S' is heated, along with a residue 'R'. These gases are major air pollutants. When the vapours of the gases are collected and dissolved in water, the solution turns blue litmus to red. The colour of the residue becomes red.



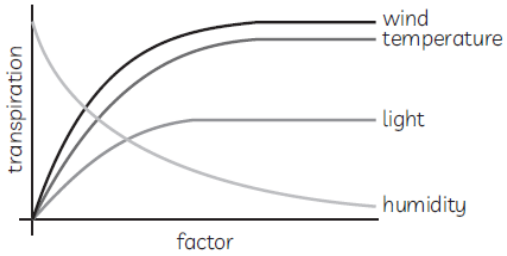
What would be S, R, G.
(a) $Pb[NO_3]_2$, PbO_2, NO_2, N_2O_4
(b) $FeSO_4$, FeO_2O_3, H_2O, H_2O_2
(c) $FeSO_4$, Fe_2O_3, SO_2, SO_3
(d) $PbSO_4$, Pb_2O_2, SO_2, SO_3

8. Which of the following equation represent chlor-alkali process?
(a) $2NaCl_{(aq)} + 2H_2O_{(l)} \rightarrow 2NaOH_{(aq)} + Cl_{2(g)} + H_{2(g)}$
(b) $2NaCl_{(aq)} + H_2O_{(l)} \rightarrow NaOH_{(aq)} + Cl_{2(g)} + H_{2(g)}$
(c) $NaCl_{(aq)} + 2H_2O_{(l)} \rightarrow 2NaOH_{(aq)} + Cl_{2(g)} + 2H_{2(g)}$
(d) $NaCl_{(aq)} + H_2O_{(l)} \rightarrow NaOH_{(aq)} + Cl_{2(g)} + H_{2(g)}$

9. When a few drops of phenolphthalein is added to a solution having pH 10.5, then the colour:
(a) changes to blue
(b) changes to pink
(c) changes to red
(d) does not change

10. Photosynthesis is considered an:
(a) Endothermic Reaction
(b) Exothermic Reaction
(c) Physical Reaction
(d) Endothermic and Physical Reaction

11. A plot of various abiotic factors affecting the rate of transpiration is given below :



After analyzing the graph a student writes the following statements.
(I) The rate of transpiration increases with increase in light intensity, wind speed and humidity.
(II) The rate of transpiration decreases linearly with increase in light intensity, temperature and humidity.
(III) The rate of transpiration decreases with increase in humidity.
(IV) The rate of transpiration increases with increase in light intensity, temperature and humidity.

Choose from the following which of the following would be the correct statement(s).
(a) Only (I) (b) Only (II)
(c) Only (III) (d) Both (I) and (IV)

12. Which part of alimentary canal receives bile from the liver?
(a) Stomach (b) Small intestine
(c) Large intestine (d) Oesophagus

13. A man developed sudden muscle cramps while jogging.

The reason for muscle cramps could be:

(a) Build up of alcohol in muscles

(b) Build up of lactic acid in muscles

(c) Lack of water in the body

(d) Build up of carbon dioxide in muscles

14. Select the incorrect statements about lymph:

(I) It is also called tissue fluid

(II) It is similar to RBC of blood

(III) It drains into blood capillaries

(IV) It carries digested and absorbed fat from intestines

(a) Both (II) and (IV)

(b) Both (I) and (IV)

(c) Both (I) and (III)

(d) Both (II) and (III)

15. Which of the following are true about breathing?

(I) The diaphragm and muscles attached to ribs relax during inhalation.

(II) The thorax moves upwards and outwards during inhalation, thereby decreasing the volume inside thoracic cavity.

(III) During exhalation, the muscles of diaphragm and ribs relax.

(IV) The thoracic cavity contracts and comes back to its original size during exhalation.

(a) Both (I) and (III)

(b) Both (II) and (III)

(c) Both (I) and (IV)

(d) Both (III) and (IV)

16. The transport of soluble products of photosynthesis is called:

(a) Transpiration

(b) Exhalation

(c) Translocation

(d) Nutrition

17. Select the correct statements:

(I) The centre of curvature C of a spherical mirror is a part of the mirror.

(II) The centre of curvature of a concave mirror lies in front of it.

(III) The centre of curvature of a concave mirror lies behind the mirror.

(IV) The centre of curvature of a convex mirror lies behind the mirror.

(a) Both (I) and (II) (b) Both (II) and (III)

(c) Both (I) and (IV) (d) Both (II) and (IV)

18. The table below gives the refractive index of a few materials and the speed of light in that medium.

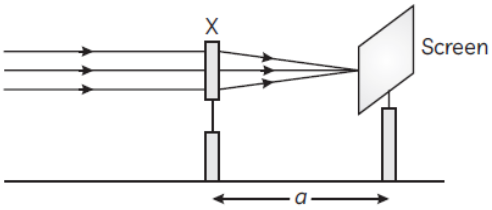
Material	Refractive Index	Speed of light (ms^{-1})
Air	1.00	3.0×10^5
Water	1.33	2.3×10^5
Perspex	1.49	2.0×10^5
Glass	1.50	2.0×10^5
Diamand	2.42	1.2×10^5

The speed of light in a medium 'A' having refractive index 2.00 will be:

(a) 1.5×10^8 m/s (b) 2.0×10^8 m/s

(c) 3.0×10^8 m/s (d) 6.0×10^8 m/s

19. Deeksha determined the focal length of a glass piece X by focusing a distant object on the screen as shown in the following diagram.



Which of the following statement is correct?

(a) Device X is a concave mirror and distance *d* is its focal length.

(b) Device X is a concave mirror and distance *d* is its radius of curvature.

(c) Device X is a convex lens and distance *d* is its radius of curvature.

(d) Device X is a convex lens and distance *d* is its focal length.

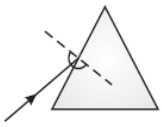
20. A pole of height 1.8 m stands in front of a larger vertical plane mirror. The distance of the image from the pole at a distance of 1.5 m from the mirror is:

(a) 1.8 m (b) 1.5 m

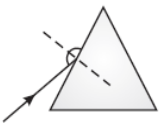
(c) 1.2 m (d) 3.0 m

21. Which of the following is the correct set-up of protractor for tracing the path of ray of light through a glass prism, for measuring the angle of incidence?

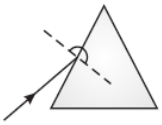
(a)



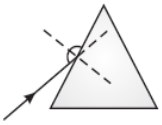
(b)



(c)



(d)



22. Aarav viewed his enlarged image in front of a mirror. He asked his father what kind of mirror that is. The father replied it was a concave mirror. What could be possible position of Aarav to view such image in the mirror?

(a) between *f* and 2*f*

(b) beyond 2*f*

(c) at 2*f*

(d) between *f* and P

23. The air layer of atmosphere whose temperature is less than the hot layer behave as optically:

(a) denser medium

(b) rarer medium

(c) inactive medium

(d) either denser or rarer medium

24. The danger signals are red in colour because it is:

(a) strongly scattered by fog or smoke

(b) least scattered by fog or smoke

(c) least absorbed by fog or smoke

(d) strongly absorbed by fog or smoke

SECTION - B

(Section B consists of 24 questions (Q. No. 25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.)

25. Which of the following reactions given below are not examples of double displacement reactions?

(I) $Cu_{(s)} + 2AgNO_{3(aq)} \longrightarrow Cu(NO_3)_{2(aq)} + 2Ag_{(s)}$

(II) $NaOH + HCl \longrightarrow NaCl + H_2O$

(III) $AlCl_{3\ (aq)} + 3NH_4OH_{\ (aq)} \longrightarrow Al(OH)_{3(s)} + 3NH_4Cl_{(aq)}$

(IV) $Pb(NO_3)2_{(aq)} + 2NaCl_{(aq)} \longrightarrow 2NaNO_{3(aq)} + PbCl_{2(s)}$

(a) Only (I)

(b) Both (I) and (II)

(c) Both (II) and (III)

(d) (I), (II) and (IV)

26. The table provides the pH value of four solutions P, Q, R and S

Solution	pH value
P	2
Q	9
R	5
S	11

Which of the following correctly represents the solutions in increasing order of their hydronium ion concentration?

(a) P > Q > R > S

(b) P > S > Q > R

(c) S < Q < R < P

(d) S < P < Q < R

27. Which of the following metals do not react with oxygen even at high temperature?

(I) Lead (II) Silver

(III) Zinc (IV) Gold

(a) Both (I) and (II) (b) Both (II) and (III)

(c) Both (I) and (III) (d) Both (II) and (IV)

28. Select the correct observations when calcium is treated with water:

(I) Ca reacts with cold water

(II) Ca reacts with hot water

(III) Ca does not react either with cold water or with hot water.

(IV) Ca starts floating as the bubbles of hydrogen gas stick to its surface.

(a) Both (I) and (II)

(b) Both (I) and (IV)

(c) Both (II) and (IV)

(d) Both (III) and (IV)

29. Select the correct statements regarding metal oxides:

(I) Metal oxides are basic in nature

(II) Metal oxides are acidic in nature

(III) Metal oxides react with acid to form salt and water.

(IV) Metal oxides react with base to form salt and water.

(a) Both (I) and (III)

(b) Both (I) and (IV)
(c) Both (II) and (III)
(d) Both (II) and (IV)

30. Which of the following statement do not correctly represent the use of sodium hydroxide?
(a) It is used in paper making
(b) It is used to rayon and acetate fibers
(c) it is used in killing bacteria in drinking wastes and in swimming pool
(d) It is used in detergents and soaps to remove greases.

Question No. 31 to 34 consist of two statements– Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

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

31. Assertion (A): Ammonium chloride is an acidic salt.
Reason (R): It is a salt of weak base [NH_4Cl] and strong acid [HCl]

32. Assertion (A): The following chemical equation, $C_6H_6 + \frac{15}{2} O_2 \rightarrow 6CO_2 + 3H_2O$ is a balanced chemical equation.
Reason (R): In a balanced chemical equation, the total number of molecules is equal on both side of the equation.

33. Assertion (A): Each lung contain a residual volume of air.
Reason (R): It provide sufficient time for oxygen to be absorbed and carbon dioxide to be released.

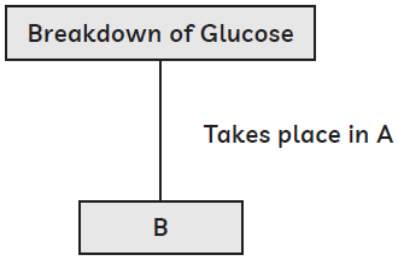
34. Assertion (A) : The sky looks blue during day.
Reason (R) : No atmosphere containing air in the outer space to scatter sunlight.

35. Which of the following metals will **not** produce hydrogen gas with dilute HCl?
(a) Mg (b) Cu
(c) Al (d) Zn

36. The event that does not occur in photosynthesis
(a) Absorption of light energy by chlorophyll
(b) Conversion of light energy to chemical energy
(c) Splitting of water molecules into hydrogen and oxygen
(d) Oxidation of carbon to carbon dioxide

37. The direction of diffusion of carbon dioxide and oxygen gases in plants depends on:
(I) Environmental conditions
(II) Plant requirements
(III) Rate of transpiration
(IV) Amount of ATP available
(a) Both (I) and (II)
(b) Both (II) and (III)
(c) Both (I) and (IV)
(d) Both (II) and (IV)

38. The figure below shows the first step in the breakdown of glucose.



Identify A and B and select the correct combination from the table below:

Option	A	B
(a)	Cytoplasm	Pyruvate
(b)	Cytoplasm	ATP
(c)	Mitochondria	Pyruvate
(d)	Mitochondria	ATP

39. The following table shows the absolute refractive index of some material medium.

Material Medium	Refractive index
Air	1.0003
Alcohol	1.36
Benzene	1.50
Rock Salt	1.54
Ruby	1.71

When light passes from benzene to alcohol:
(a) It will bend towards normal
(b) It will bend away from normal
(c) It will go without any deviation
(d) It will be reflected internally

S. No.	Object-Distance u (cm)	Image-Distance v (cm)
1.	–60	+12
2.	–30	+15
3.	–20	+20
4.	–15	+30
5.	–12	+60
6.	–9	+90

40. The focal length of the convex lens is:
(a) + 10 cm (b) + 20 cm
(c) – 10 cm (d) – 20 cm

41. The separation of the left and right side of the heart is useful in:
(a) Preventing oxygenated and deoxygenated blood from mixing
(b) Pumping blood to different body parts effciently
(c) Exchange of gases
(d) Ensuring that blood flows in one direction only

42. The blood vessel that collects the blood from different organs and brings it back to the heart is:
(a) Arteries (b) Veins
(c) Capillaries (d) Lymph

43. A student uses a lens of focal length 40 cm and another of – 20 cm. The power and focal length of the combination will be:

	Power of Combination	Focal length of Combination
(a)	- 2.5 D	- 40 cm
(b)	+ 2.5 D	+ 40 cm
(c)	+ 5.0 D	+ 20 cm
(d)	- 5.0 D	- 40 cm

44. If an object is placed perpendicular to the principal axis of a convex lens of focal length 8 cm and object distance is 12 cm, the image will be formed at?
(a) 12 cm behind the lens
(b) 12 cm in front of the lens
(c) 24 cm behind the lens
(d) 24 cm in front of the lens

45. The colour of the scattered light depends on:
(a) Size of the scatterer
(b) Total internal reflection
(c) Dispersion of light
(d) Atmospheric refraction

46. The apparent flattening of the sun's disc at sunrise and sunset is due to:
(a) Dispersion of light
(b) Atmospheric refraction
(c) Scattering of light
(d) Diffraction of light

47. Pratik conducts an experiment using an object of height 10 cm and a concave lens with focal length 20 cm. The object is placed at a distance of 25 cm from the lens:
(a) Yes, as the image formed will be real
(b) No, as the image formed will be inverted
(c) No, as the image formed will be virtual
(d) Yes, as the image formed will be erect

48. Which of the following are ionic compounds?
(I) $MgCl_2$
(II) HCl
(III) CCl_4
(IV) Na_2O
(a) Both (I) and (II)
(b) Both (II) and (III)
(c) Both (I) and (IV)
(d) (I), (II) and (IV)

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.)

Q. 49 to 52 are based on Case Study–1

Case 1: *The table given below, in which samples of four metals P, Q, R and S were taken and added to the following solutions one by one. The results obtained have been tabulated as follows.*

Metal	Iron (II) sulphate	Copper (II) sulphate	Zinc sulphate	Silver nitrate
P	*No reaction*	*Displacement*		
Q	*Displacement*		*No reaction*	
R	*No reaction*	*No reaction*	*No reaction*	*Displacement*
S	*No reaction*	*No reaction*	*No reaction*	*No reaction*

49. Which is the most reactive metal?
(a) P (b) Q
(c) R (d) S

50. Which is the least reactive metal?
(a) P (b) R
(c) Q (d) S

51. What would you observe if Q is added to a solution of copper (II) sulphate?
(a) Combination reaction takes place
(b) Decomposition reaction takes place
(c) Displacement reaction takes place
(d) No reaction takes place

52. The increasing order of reactivity of metals P, Q, R and S is :
(a) P < Q < R < S (b) S < R < Q < P
(c) S < R < P < Q (d) Q < P < R < S

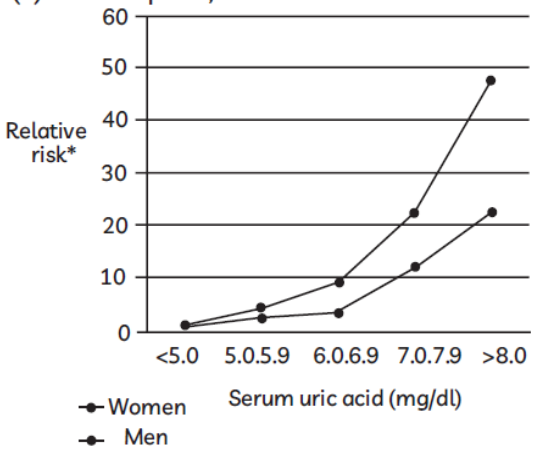
Q. 53 to 56 are based on Case Study–2

Case 2: *The biological process involved in the removal of harmful metabolic wastes from the body is called excretion. Different organisms use varied strategies to do this. Many unicellular organisms remove these wastes by simple diffusion from the body surface into the surrounding water while complex multicellular organisms use specialised organs to perform the same function.*

53. A network of tiny blood vessels located at the beginning of a nephron is:
(a) Renal calyces
(b) Renal pyramid
(c) Glomerulus
(d) Bowman's capsule

54. Each kidney is made up of a large number of excretory units called:
(a) Glomerulus
(b) Nephrons
(c) Bowman's Capsule
(d) Blood capillaries

55. The correct sequence of urine formation is
(a) Filtration, reabsorption, secretion
(b) Secretion, reabsorption, filtration
(c) Reabsorption, secretion, filtration
(d) Reabsorption, filtration secretion



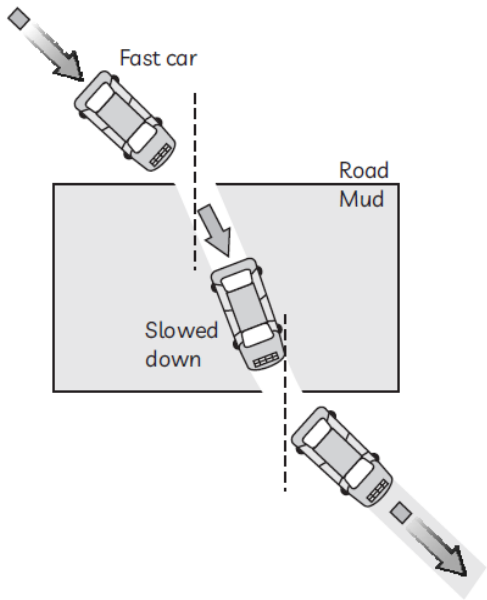
After studying the above graph, a student noted down the following observations:
(I) The serum uric acid level is same for both men and women for risk below 10.
(II) Serum uric acid level should be under 8.0 mg/dl for both men and women for relative risk below 10.
(III) The normal Serum uric acid level is more for women and less for men for the same relative risk.
(IV) The normal Serum uric acid level is more for men and less for women for the same relative risk.

Select the correct statement(s):
(a) Only (II) (b) Both (I) and (IV)
(c) Both (II) and (III) (d) Both (I) and (III)

56. The speed of light in air 300000 km/s whereas that of speed in a glass slab is about 197000 km/s. What is the reason for the difference in speed of light in two media?
(a) Difference in density.
(b) Difference in amount of light.
(c) Difference in density of wind flow.
(d) Difference in temperature.

Q. 57 to 60 are based on Case Study–3

Case 3: *Suppose a car is travelling across the road towards a muddy track at an angle, the mud shows down one side of the car, and the path of the car bends. The more it is slowed, the more is bends. Upon exiting the track on the opposite side, the car speeds up and achieves its original speed. This analogy represents light wave travelling from rarer medium to denser medium. Thus, a ray of light travelling from a rarer medium to denser medium bends towards normal. When it travels from closer medium to rarer medium, it bends away from normal.*



57. The speed of light in air 300000 km/s whereas that of speed in a glass slab is about 197000 km/s. What is the reason for the difference in speed of light in two media?

(a) Difference in density.

(b) Difference in amount of light.

(c) Difference in density of wind flow.

(d) Difference in temperature.

58. Which of the following explains the law of refraction of light through the glass slab?

(a) Light always bends towards the normal in a glass slab.

(b) The incident ray, the refracted ray, and the normal to the interface always lie on the same plane.

(c) Ray of light travelling in the air is always considered as the incident ray, and the one in the glass is the refracted ray.

(d) Ray of light always travels in a straight path irrespective of change in medium.

59. The speed of light in air is 3×10^8 ms^{-1}, whereas that of the speed of light in water is 2.26×10^8 ms^{-1}. What is the refractive index of water with respect to air?

(a) 2.64 (b) 1

(c) 1.32 (d) 0.75

60. A ray of light continues moving along the same path while passing through air, glass interface. The angle of incidence for the ray is:

(a) zero (b) 90°

(c) less than 90° (d) grater than 90°

ANSWER KEYS

MOCK TEST 1

1. B	2. A	3. B	4. C	5. D	6. D	7. A	8. D	9. A	10. B
11. D	12. C	13. A	14. B	15. A	16. C	17. A	18. A	19. D	20. B
21. C	22. B	23. A	24. C	25. B	26. A	27. C	28. B	29. D	30. D
31. C	32. C	33. C	34. A	35. B	36. D	37. B	38. B	39. C	40. A
41. C	42. C	43. D	44. A	45. A	46. D	47. B	48. B	49. C	50. C
51. C	52. B	53. C	54. C	55. C	56. D	57. A	58. C	59. C	60. B

MOCK TEST 2

1. (C)	2. (B)	3. (B)	4. (B)	5. (A)	6. (D)	7. (C)	8. (B)	9. (C)	10. (A)
11. (C)	12. (B)	13. (B)	14. (C)	15. (B)	16. (A)	17. (D)	18. (C)	19. (D)	20. (D)
21. (B)	22. (A)	23. (B)	24. (C)	25. (B)	26. (B)	27. (D)	28. (C)	29. (C)	30. (D)
31. (A)	32. (C)	33. (C)	34. (C)	35. (C)	36. (A)	37. (D)	38. (D)	39. (A)	40. (D)
41. (C)	42. (B)	43. (B)	44. (A)	45. (C)	46. (C)	47. (B)	48. (A)	49. (A)	50. (B)
51. (B)	52. (A)	53. (B)	54. (A)	55. (C)	56. (D)	57. (A)	58. (B)	59. (D)	60. (D)

MOCK TEST 3

1. (A)	2. (A)	3. (B)	4. (D)	5. (A)	6. (C)	7. (C)	8. (A)	9. (B)	10. (A)
11. (C)	12. (B)	13. (B)	14. (D)	15. (D)	16. (C)	17. (D)	18. (A)	19. (D)	20. (D)
21. (D)	22. (D)	23. (A)	24. (B)	25. (A)	26. (C)	27. (D)	28. (B)	29. (A)	30. (C)
31. (A)	32. (C)	33. (A)	34. (B)	35. (B)	36. (D)	37. (A)	38. (A)	39. (B)	40. (A)
41. (A)	42. (B)	43. (A)	44. (C)	45. (A)	46. (B)	47. (C)	48. (C)	49. (B)	50. (D)
51. (C)	52. (C)	53. (C)	54. (B)	55. (A)	56. (C)	57. (A)	58. (B)	59. (C)	60. (A)