Sample Question Paper (TERM - I)

Class X (Session - 2021-22)

Subject- Science

Time: 90 Minutes

General Instructions:

1. The Question Paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

Section A

Q1: Anuj took 5ml of Lead Nitrate solution in a beaker and added approximately 4ml of Potassium lodide solution to it. What would she observe?

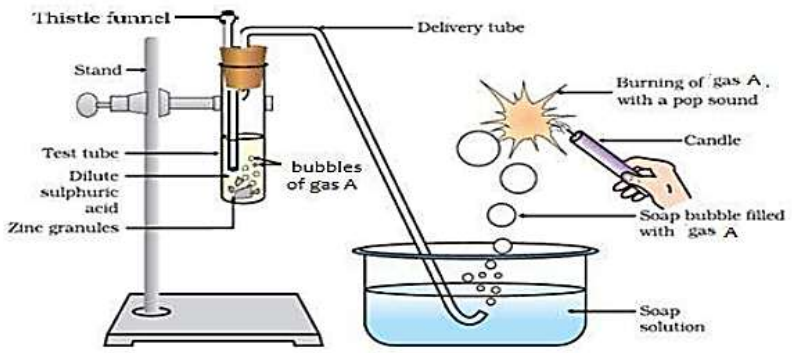
(a) The solution turned red

(b) Yellow precipitate was formed

(c) White precipitate was formed

(d) The reaction mixture became hot

Q2: Identify gas A in the following experiment.



(a) Nitrogen

(b) Hydrogen

(c) Oxygen

(d) Carbon dioxide

Q3: The pH of the gastric juices released during digestion is

(a) Less than 7

(b) More than 7

(c) Equal to 7

(d) Equal to 0

Q4: Which of the following correctly represents a balanced chemical equation?

(a) $Fe_{(s)} + 4H_2O_{(s)} \rightarrow Fe_3O_{4(s)} + 4H_{2(g)}$

(b) $3Fe_{(s)} + 4H_2O_{(g)} \rightarrow Fe_3O_{4(s)} + 4H_{2(g)}$

(c) $3Fe_{(s)} + H_2O_{(g)} \rightarrow Fe_3O_{4(s)} + H_{2(g)}$

(d) $3Fe_{(s)} + 4H_2O_{(g)} \rightarrow Fe_3O_{4(s)} + H_{2(g)}$

Q5: In terms of acidic strength, which one of the following is in the correct increasing order?

(a) Water < Acetic acid < Hydrochloric acid

(b) Water < Hydrochloric acid < Acetic acid

(c) Acetic acid < Water < Hydrochloric acid

(d) Hydrochloric acid < Water < Acetic acid

Q6: The reaction between lead nitrate and potassium iodide present in aqueous solutions is an example of

(a) Decomposition Reaction

(b) Displacement Reaction

(c) Double Displacement Reaction

(d) Neutralisation Reaction

Q7: Which of the given options correctly represents the Parent acid and base of Calcium Carbonate?

	Parent Acid	Parent Base
(a)	HCl	NaOH
(b)	H_2CO_3	$Ca(OH)_2$
(c)	H_3PO_3	$CaSO_4$
(d)	H_2SO_4	$CaSO_4$

Q8: When hydrogen chloride gas is prepared on a humid day, the gas is usually passed through the guard tube containing calcium chloride. The role of calcium chloride taken in the guard tube is to

(a) absorb the evolved gas

(b) moisten the gas

(c) absorb moisture from the gas

(d) absorb Cl^- ions from the evolved gas

Q9: Why is it important to balance a skeletal chemical equation?

(a) To verify law of conservation of energy.

(b) To verify the law of constant proportion.

(c) To verify the law of conservation of mass.

(d) To verify the law of conservation of momentum.

Q10: An element X has electronic configuration 2,8,1 and another element Y has electronic configuration 2,8,7. They form a compound Z. The property that is not exhibited by Z is

(a) It has high melting point.

(b) It is a good conductor of electricity in its pure solid state.

(c) It breaks into pieces when beaten with hammer.

(d) It is soluble in water

Q11: What happens if a person has one kidney removed?

(a) They will accumulate excess urea

(b) They will die

(c) They will continue as normal

(d) They will stop making urine

Q12: Generally, non-metals are not lustrous. Which of the following non-metals is lustrous?

(a) Sulphur

(b) Oxygen

(c) Nitrogen

(d) Iodine

Q13: The kidney is associated with the cup-shaped end of a coiled tube called

(A)Glomerulus

(B)Bowman's capsule

(C)collecting duct

(D)none of the above

Q14: Which two organs release their secretions into small intestine for digestion of food?

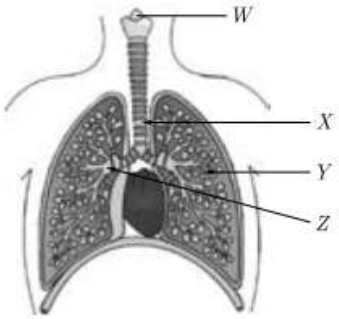
(a) Liver and stomach

(b) Oesophagus and stomach

(c) Pancreas and stomach

(d) Liver and pancreas

Q15: The diagrams shows part of the human gas exchange system.



Here, W, X, Y and Z are?

	Bronchus	Bronchiole	Larynx	Trachea
(a)	W	X	Z	Y
(b)	X	Z	Y	W
(c)	Y	W	X	Z
(d)	Z	Y	W	X

Q16: Which among the following is necessary to carry out the blood coagulation in a cut or wound?

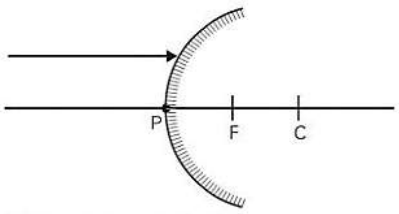
a) White Blood Cells

b) Blood plasma

c) Platelets

d) Red blood cells

Q17: Study the ray diagram given below and select the correct option for light ray after reflection.



(a) Parallel to the incident ray

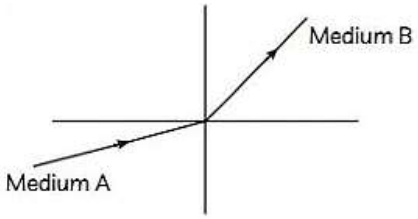
(b) Pass through F

(c) Appear to diverge from F

(d) Appear to diverge from C

Q18: A light ray from medium A to medium B as shown in the given figure.

The refractive index of medium B relative to medium A is:



(a) more than one

(b) less than one

(c) one

(d) zero

Q19: Shreya is at the distance 15 cm moves slowly towards the pole of a convex mirror.

What will be the image in the mirror?

(a) shortened and real

(b) enlarged and real

(c) enlarged and virtual

(d) diminished and virtual

Q20: Planets do not twinkle because:

(a) Planets are not a source of light.

(b) The shift in their position (as compared to stars) is smaller.

(c) they reflect high intensity light reaching them.

(d) both (a) and (b) are true.

Q21: Dispersion of light takes place by a glass prism because:

(a) The light of different colours have different intensities.

(b) The light of different colours have different energies.

(c) The light of different colours have different speed in a medium.

(d) Different colours have different frequencies.

Q22: When light travels from air to medium, the angle of incidence is 45 and angle of refraction is 30. The refractive index of second medium with respect to the first medium is

(a) 1.41

(b) 1.50

(c) 1.23

(d) 1

Q23: Study the given diagram explaining the formation of rainbow in the sky:

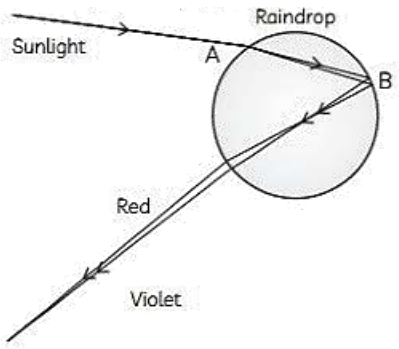
Select the correct statements w.r.t. the

(a) Dispersion occurs at point A

(b) Internal refraction occurs at point B diagram above.

(c) Internal reflection occurs at point A

(d) Dispersion occurs at point B



Rainbow formation

Q24: Which of the following can make a parallel beam of light when light from a point source is incident on it?

(a) Concave mirror as well as convex lens.

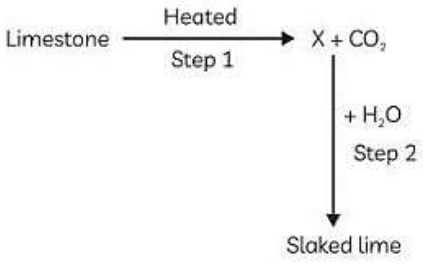
(b) Convex mirror as well as concave lens.

(c) Two plane mirrors placed at 90^0 to each others.

(d) Concave mirror as well as concave lens.

SECTION B

Q25:



Identify the correct option from the given table which represents the type of reactions occurring in step 1 and step 2 .

	Endothermic	Exothermic
(a)	×	√
(b)	√	×
(c)	√	√
(d)	×	×

Q26: An iron nail was suspended in $CuSO_4$ solution and kept for a while the solution is

(a) Remained blue and coating was found on the nail.

(b) turned green and a coating was formed on the nail

(c) remained blue and no coating was formed on the nail

(d) turned green and no coating was formed on the nail

Q27: Which of the following statements is correct about an aqueous solution of an acid and of a base?

(i) Higher the pH, stronger the acid

(ii) Higher the pH, weaker the acid

(in) 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)

Q28: Name the products formed when iron filings are heated with dilute hydrochloric acid

(a) Fe (III) chloride and water

(b) Fe (II) chloride and water

(c) Fe (II) chloride and hydrogen gas

(d) Fe (III) chloride and hydrogen gas

Q29: When copper oxide and dilute hydrochloric acid react, colour changes to

(a) white

(b) bluish-green

(c) blue-black

(d) black

Q30: Which of the following is not a physical change?

(a) Boiling of water to give water vapour

(b) Melting or ice to give water

(c) Dissolution of salt in water

(d) Combustion of Liquefied Petroleum Gas (LPG)

Q31: Consist of two statements – Assertion (A) and Reason (R).

Answer these question selecting the appropriate option given below:

Assertion: Fresh milk in which baking soda is added, takes a longer time to set as curd.

Reason: Baking soda decreases the pH value of fresh milk to below 6.

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

Q32: Consist of two statements – Assertion (A) and Reason (R).

Answer these question selecting the appropriate option given below:

Assertion: Decomposition of vegetable matter into compost is an endothermic reaction.

Reason: Decomposition reaction involves breakdown of a single reactant into simpler products.

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

Q33: Consist of two statements – Assertion (A) and Reason (R).

Answer these question selecting the appropriate option given below:

Assertion: Resins and gums are stored in old xylem tissue in plants.

Reason: Resins and gums facilitate transport of water molecules.

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

Q34: Consist of two statements – Assertion (A) and Reason (R).

Answer these question selecting the appropriate option given below:

Assertion: Sky appears blue in the day time.

Reason: White light is composed of seven colours.

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

Q35: Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?

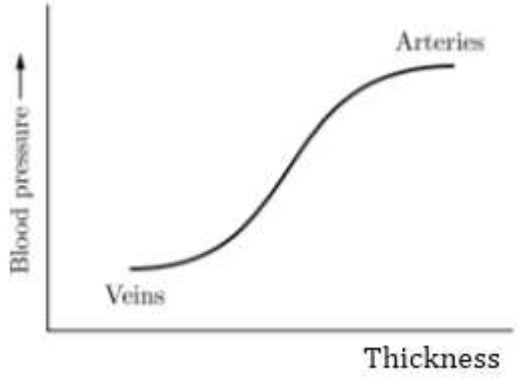
(a) FeO

(b) Fe_2O_3

(c) Fe_3O_4

(d) Fe_2O_3 and Fe_2O_4

Q36: Which blood vessels have high blood pressure and what they have to withstand this high pressure?



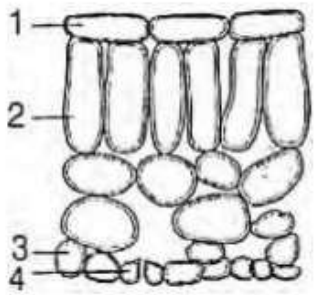
(a) Both arteries and veins have same pressure of blood and they are thick walled vessels.

(b) Arteries have high blood pressure and they have elastic and thick walls to withstand this high pressure.

(c) Veins have high blood pressure and they have to valves to withstand this high pressure.

(d) None of the above

Q37: The diagram shows the arrangement of cells inside the leaf of a green plant. (No cell contents are shown). Which cells normally contain chloroplasts?



(a) 1 and 2

(b) 1 and 4

(c) 2 and 3

(d) 2 and 4

Q38: Transpiration is regulated by the movements of _____

a) Parenchyma cells

b) Guard cells

c) Epithelial cells

d) None of the above

Q39: Consider these indices of refraction: glass: 1.52; air: 1.0003; water: 1.333. Based on the refractive indices of three materials, arrange the speed of light through them in decreasing order.

(a)The speed of light in water > the speed of light in air > the speed of light in glass.

(b) The speed of light in glass > the speed of light in water > the speed of light in air.

(c) The speed of light in air > the speed of light in water > the speed of light in glass.

(d) The speed of light in glass > the speed of light in air > the speed of light in water.

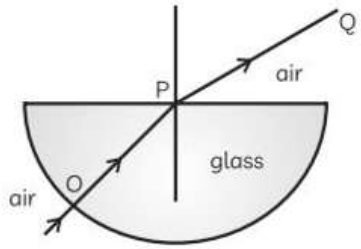
Q40: The angle of incidence from air to glass at the point O on the hemispherical glass slab is.

(a) 45°

(b) 0°

(c) 90°

(d) 180°



Q41:

Only two of the following Statements accurately describe what happens in the mouth.

1. Amylase breaks down large starch molecules into smaller maltose molecules.
2. Chewing increases the surface area of food for digestion.
3. Saliva emulsifies fats into smaller droplets.
4. Teeth breakup large insoluble molecules into smaller soluble molecules

Which statements are correct?

(a) 1 and 2

(b) 2 and 3

(c) 3 and 4

(d) 1 and 4

Q42: Arteries and veins are connected by a network of extremely narrow tubes called:

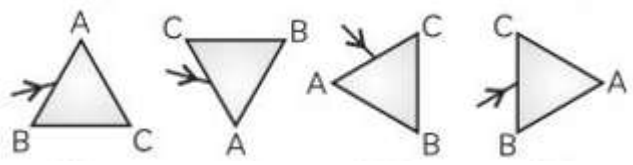
a) Sieve tubes

b) Capillaries

c) Vena cava

d) Valves

Q43: A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in below Figure. In which of the following diagrams, after dispersion, the third colour from the top of the spectrum corresponds to the colour of the sky?



(i) (ii) (iii) (iv)

(a) (i)

(b) (ii)

(c) (iii)

(d) (iv)

Q44: If the power of a lens is -4.0D then it means that the lens is a

(a) concave lens of focal length -50 m

(b) convex lens of focal length $+50$ cm

(c) concave lens of focal length -25 cm

(d) convex lens of focal length -25 m

Q45: 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

Q46: An object of size 7 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed so that a sharp focused image can be obtained?

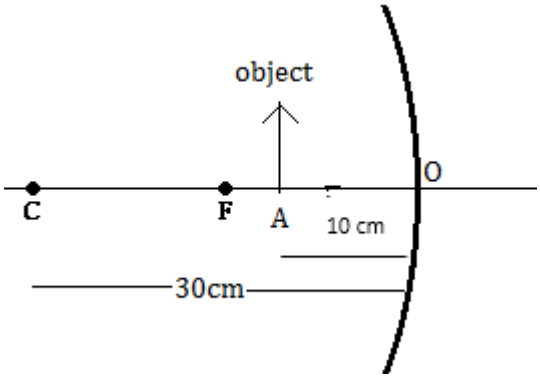
(a) 54 cm

(b) – 54 cm

(c) $+10.8$ cm

(d) –10.8 cm

Q47: The nature of image formed by a spherical mirror for an object OA placed as shown in the figure will be:



(a) Real, inverted and enlarged

(b) virtual,erect and enlarged

(c) real, inverted and diminished

(d) virtual, erect and diminished

Q48: A cable-manufacturing unit tested few elements based on their physical properties.

Properties	W	X	Y	Z
Malleable	Yes	No	No	Yes
Ductile	Yes	No	No	Yes
Electrical conductivity	Yes	Yes	Yes	No
Melting Point	High	Low	Low	High

Which of the above elements did the company discard for usage?

(a) W, X, Y

(b) X, Y, Z

(c) X, Z, W

(d) W, X, Z

Section - C

Case Study:

Bleaching powder is also known as chloride of lime. It is a solid and yellowish white in colour. Bleaching powder can be easily identified by the strong smell of chlorine. When calcium hydroxide (slaked lime) reacts with chlorine, it gives calcium oxychloride (bleaching powder) and water is formed. Aqueous solution of bleaching powder is basic in nature. The material to be bleached is first passed through solution of NaOH to remove greasy matter. Then it is passed through aqueous solution of bleaching powder and very dil. HCl solution. HCl reacts with bleaching powder to liberate nascent oxygen which bleaches material.

Q49: Bleaching powder is used as,

(a) bleaching agent in textile, paper and jute industry,

(b) disinfectant for water to make water free of germs

(c) oxidising agent in many industries,

(d) all of these.

Q50: Bleaching powder gives smell of chlorine because it

(a) is unstable

(b) gives chlorine on exposure to atmosphere

(c) is a mixture of chlorine and slaked lime

(d) contains excess of chlorine.

Q51: Select the correct statement(s) regarding bleaching powder.

(a) It is pale yellow powder having smell of chlorine.

(b) It is sparingly soluble in water and gives milky suspension when dissolved in water.

(c) As bleaching powder gives nascent oxygen, it shows bleaching property.

(d) All of these.

Q52: Identify the product ' X ' in the given reaction.

$Ca(OH)_2 + Cl_2 \longrightarrow X + H_2O$

(a) $CaOCl_2$

(b) $CaCl_2$

(c) $Ca(ClO_3)_2$

(d) $CaCO_3$

Case Study:

Most living things need oxygen to obtain energy from food. The oxygen reacts with food molecules and that is how energy is obtained which is stored in the form of ATP molecules in the cells. This energy can be used anywhere the body wants to do so. The process of releasing energy from food is called respiration.

Q53: What is the full form of ATP?

a) Adenisyne tri-phosphate

b) Adenosine tri-phosphate

c) Adenosine tetraphosphate

d) Adenosine monophosphate

Q54: The form of energy used in respiration is -

a) Electrical energy
b) Chemical energy
c) Mechanical energy
d) Radiant energy

Q55: Respiration is the process in which-

a) Energy is released and stored in the form of ATP
b) Energy is stored in the form of ADP
c) Energy is not released at all
d) Energy is used up

Q56: This process of break-down of glucose, a six-carbon molecule, into a three-carbon molecule pyruvate, takes place in

(a) Cytoplasm
(b) Mitochondria
(c) Golgi bodies
(d) Endoplasmic reticulum

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.

Q57: 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 F and 2F

Q58: When the object is placed at the focus of concave lens, the image formed is

(a) real and erect

(b) virtual and erect

(c) virtual and inverted

(d) real and inverted

Q59: 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

Q60: When the object is placed at 2F in front of convex lens, the location of image is

(a) at F

(b) at 2F on the other side

(c) at infinity

(d) between F and optical center