

SCIENCE HOLIDAY

HOMEWORK

CLASS - X

Dear Parents

We wish you and your child a very happy summer holidays . It's time to enjoy and create a bond with family, friends and relatives. To utilize this time in the most constructive way we have prepared Holiday Homework for the students on the principle of 'learning by doing' for their holistic development.

So here we start.....

Morning Blessings

Help your child inculcate good habits like doing "Surya Namaskar" and encourage him/her to wish all elders in the morning. If possible, visit a temple or any other religious place of your choice.

Physical Development

- ❖ Take the child with you for morning/evening walk.
- ❖ Play different games like hide and seek, football, ludo, chess, snakes and ladders, carrom board etc. with your child.

Language Development

- ❖ Encourage your child to converse in English.
- ❖ Choose any 1 object from your surroundings every day. Let the child speak few lines on it.

Being Good

- ❖ Help your child inculcate good habits like doing 'Surya Pranam' & encourage him / her to greet all elders in the morning.
- ❖ Help your child to use 4 magical words : PLEASE, SORRY, THANK YOU, EXCUSE ME as the part of basics of good manners.
- ❖ Encourage your child to listen.
- ❖ Gently care for animals. Encourage your child to be empathetic towards animals.
- ❖ Involve your child to sow a plant in a pot and give water. Give knowledge about plants and trees. Explain to them that they are an integral part of their growing
- ❖ Have at least two meals together with your children. Teach them the importance and hard work of the farmer and ask them not to waste their food.
- ❖ Let them take their own plates after every meal . Children learn dignity of labour from such activities.

Health and Hygiene

"Healthy mind resides in a healthy body." So start your day early and set a routine even during vacations. In addition you and your little one can spend some quality time playing, cycling, swimming to keep yourself fit and healthy. Encourage your child to take care of personal hygiene by inculcating the habits like washing hands, practicing yoga, eating healthy food etc.

General instructions:-

1. Attempt your work neatly.
2. Use loose sheets to write answers.
3. Write your Name, Class-section and Roll number.

Revise all the explained chapters and learn question and answers.

1

- (a) Define a balanced chemical equation. Why should an equation be balanced?
(b) Write the balanced chemical equation for the following reaction:
(i) phosphorus burns in presence of chlorine to form phosphorus pentachloride.
(ii) burning of natural gas.
(iii) the process of respiration.

2

- (a) A solution of substance 'X' is used for white washing. What is the substance 'X'?
State the chemical reaction of 'X' with water. **[HOTS]**
(b) Why does the colour of copper sulphate solution change when an iron nail is dipped in it?

3

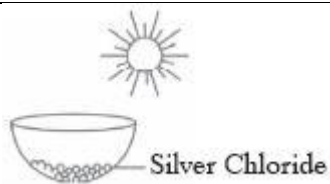
- A zinc plate was put into a solution of copper sulphate kept in a glass container. It was found that blue colour of the solution gets fader and fader with the passage of time. After a few days when zinc plate was taken out of the solution, a number of holes were observed on it.
(a) State the reason for changes observed on the zinc plate.
(b) Write the chemical equation for the reaction involved.

4

- Write balanced equations for the following, mentioning the type of reaction involved.
(a) Aluminium + Bromine \rightarrow Aluminium bromide
(b) Calcium carbonate \rightarrow Calcium oxide + Carbon dioxide
(c) Silver chloride \rightarrow Silver + Chlorine

5

- The following diagram displays a chemical reaction. Observe carefully and answer the following questions:
(a) Identify the type of chemical reaction that will take place and define it. How will the colour of the salt change?
(b) Write the chemical equation of the reaction that takes place.
(c) Mention one commercial use of this salt.



6

What is meant by

- (a) precipitation reaction,
- (b) exothermic reaction,
- (c) oxidation reaction.

Write balanced chemical equations for an example of each.

7

$2\text{HNO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}(\text{NO}_3)_2 + 2\text{H}_2\text{O}$; is an example of

- (i) displacement reaction
- (ii) double displacement reaction
- (iii) neutralisation reaction
- (iv) combination reaction.

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

8

A student took sodium sulphate solution in a test tube and added barium chloride solution to it. He observed that an insoluble substance has formed.

The colour and molecular formula of the insoluble substance is: **[CBSE 2021]**

- (a) Grey, Ba_2SO_4
- (b) Yellow, $\text{Ba}(\text{SO}_4)_2$
- (c) White, BaSO_4
- (d) Pink, BaSO_4

9

Which one of the following reactions is categorised as thermal decomposition reaction? **[CBSE 2021]**

- (a) $2\text{H}_2\text{O}(l) \rightarrow 2\text{H}_2(g) + \text{O}_2(g)$
- (b) $2\text{AgBr}(s) \rightarrow 2\text{Ag}(s) + \text{Br}_2(g)$
- (c) $2\text{AgCl}(s) \rightarrow 2\text{Ag}(s) + \text{Cl}_2(g)$
- (d) $\text{CaCO}_3(s) \rightarrow \text{CaO}(s) + \text{CO}_2(g)$

10

A student notices that new hammer made of iron is shiny while an old one kept in the tool box has a reddish brown deposit over it. What does the change in colour of hammer indicate? **[CBSE T.E.R.M.*]**

- (a) Effect of moisture on metals
- (b) Iron hammer turns brown after sometime.
- (c) Effects of kept in a box for longer duration.
- (d) Iron changes colour when kept with other tools.

11

A student notices her jewellery turned dull and had grey black film over it after wearing for a few months. What results in the change in its colour? [CBSE T.E.R.M.*]

- (a) Dust deposit over the jewellery which changes its colour.
- (b) The jewellery comes in contact with air, moisture, acids and corrodes.
- (c) The polish over the jewellery was removed after wearing for few months.
- (d) Silver breaks due to wear and tear and turns its colour change due to rusting.

12

Direction: In the following Question, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

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

Assertion: Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen gas and it is displacement reaction.

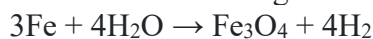
Reason: Zinc reacts with oxygen to form zinc oxide.

13

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Assertion: Following is a balanced chemical equation for the action of steam on iron.



Reason: The law of conservation of mass holds good for a chemical equation. [CBSE 2020]

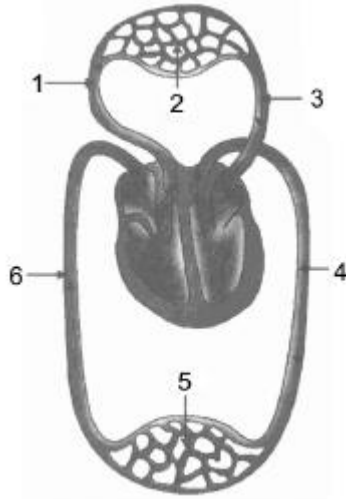
1

- (a) Write the reaction that occurs when glucose breaks down anaerobically in yeast.
- (b) Write the mechanism by which fishes breath in water.

- (c) Name the balloon like structures present in lungs. List its two functions.
(d) Name the respiratory pigment and write its role in human beings.

2

- (a) Label any 4 parts in the given diagram.
(b) What are the two functions represented in this diagram?

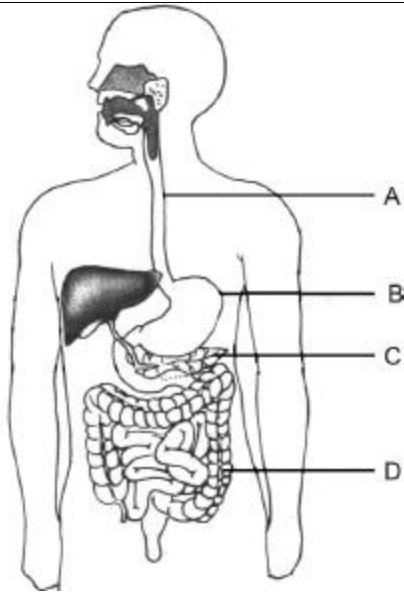


3

- (a) How does Paramecium obtain its food?
(b) List the role of each of the following in our digestive system:
(i) Hydrochloric acid
(ii) Trypsin
(iii) Muscular walls of stomach
(iv) Salivary amylase

4

From the given picture of the digestive system, identify the part labelled as pancreas.



(a) A (b) B (c) C (d) D

5

The fermentation of glucose by yeast normally yields

- (a) alcohol, CO_2 and 36 ATP
- (b) CO_2 , H_2O and 36 ATP
- (c) alcohol, CO_2 and 2ATP
- (d) lactic acid, CO_2 and 2 ATP

6

In respiration, air passes through

- (a) Pharynx \rightarrow nasal cavity \rightarrow larynx \rightarrow trachea \rightarrow bronchi \rightarrow bronchioles
- (b) Nasal cavity \rightarrow pharynx \rightarrow larynx \rightarrow trachea \rightarrow bronchi \rightarrow bronchioles
- (c) Larynx \rightarrow nasal cavity \rightarrow pharynx \rightarrow trachea
- (d) Larynx \rightarrow pharynx \rightarrow trachea \rightarrow lungs

7

Which of the following statements is not correct?

- (a) Deoxygenated blood is poured into right atrium of heart.
- (b) The excretory units of flatworms are flame cells.
- (c) Human kidney has about 1 million nephridia
- (d) Tracheids and vessels are non-living conducting tissues.

8

In the following questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

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- (b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

(c) Assertion is true but the Reason is false.

(d) The statement of the Assertion is false but the Reason is true.

Assertion: When air is passed through lime water, lime water turns milky.

Reason: Air contains 78% nitrogen and 21% oxygen.

9

In the following questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

(c) Assertion is true but the Reason is false.

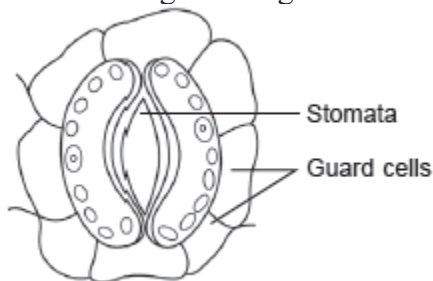
(d) The statement of the Assertion is false but the Reason is true.

Assertion: All proteins in our food are digested in small intestine only.

Reason: The protein digesting enzymes are released onto small intestine.

10

Which one of the following conditions is true for the state of stomata of a green leaf shown in the given diagram?



(a) Large amount of water flows into the guard cells.

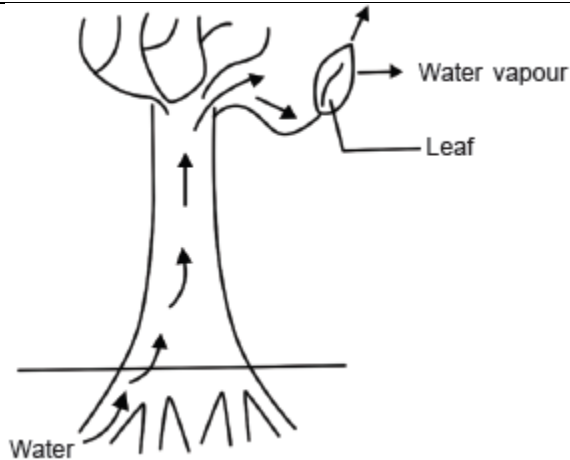
(b) Gaseous exchange is occurring in large amount.

(c) Large amount of water flows out from the guard cells.

(d) Large amount of sugar collects in the guard cells.

11

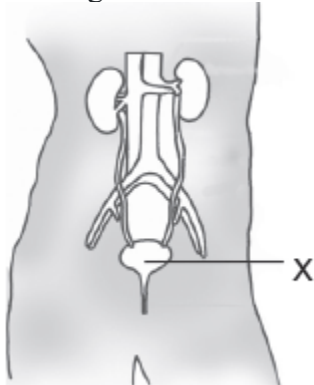
Observe the following diagram and identify the process and its significance from the following options:



- (a) Evaporation: maintains water contents in leaf cells.
- (b) Transpiration: creates a suction force which pulls water inside the plant.
- (c) Excretion: helps in excreting out waste water from the plant.
- (d) Translocation: helps in transporting materials from one cell to another.

12

The image shows the excretory system in humans.



What is the importance of the labelled part in excretory system?

- (a) It produces urine.
- (b) It filters waste from the blood.
- (c) It stores the urine till urination.
- (d) It carries urine from kidney to outside.

13

Plants lose water in vapour form from the aerial parts by the process of transpiration. Besides removal of excess water, transpiration also helps in upward movement of cell sap, to regulate temperature of the plant and helps to absorb and distribute the salt.

- (a) What is ascent of sap?
- (b) Name the vascular tissues which conduct water and translocate food.
- (c) Write two difference(s) between transpiration and translocation.

Or

- (c) Explain the mechanism of opening and closing of stomata.

1. A lens when an object is placed in front of the lens between its optical centre and principal focus.

(b) In the above ray diagram mark the object-distance (u) and the image-distance (v) with their proper signs (+ve or -ve as per the new Cartesian sign convention) and state how these distances are related to the focal length (f) of the convex lens in this case.

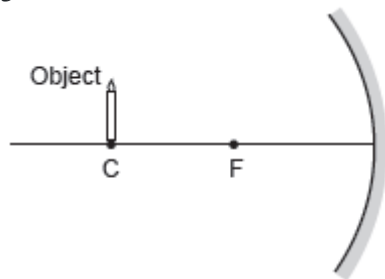
(c) Find power of a convex lens which forms a real, and inverted image of magnification -1 of an object placed at a distance of 40 cm from its optical centre.

2

One-half of a convex lens of focal length 10 cm is covered with a black paper. Can such a lens produce an image of a complete object placed at a distance of 30 cm from the lens? Draw a ray diagram to justify your answer.

A 4 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 20 cm. The distance of the object from the lens is 15 cm. Find the nature, position and size of the image.

3

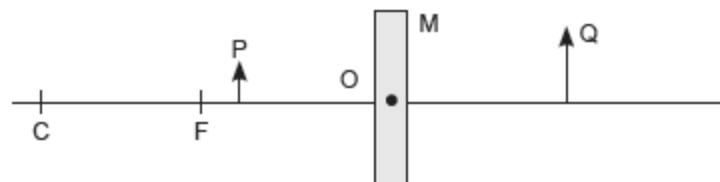


Which of the following statements is not true in reference to the diagram shown above?

- (a) Image formed is real.
- (b) Image formed is enlarged
- (c) Image is formed at a distance equal to double the focal length.
- (d) Image formed is inverted.

4

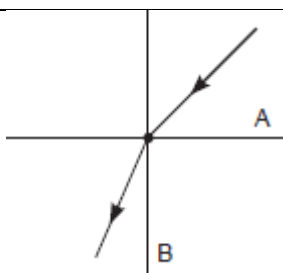
Consider the following diagram in which M is a mirror and P is an object and Q is its magnified image formed by the mirror



State the type of the mirror M and one characteristic property of the image Q.

5

A ray of light is refracted as per the following diagram. Which media A or B is optically denser than other?



6

- (a) Draw a ray diagram to show the path of a light ray passes from one medium to another if the two media are optically exactly the same.
- (b) Absolute refractive indices of medium 'A' and medium 'B' are ' n_a ' and ' n_b ' respectively. What is the refractive index of medium 'B' with respect to medium 'A'.
- (c) How does the velocity of light vary with change in the optical density of the media?

7

A 6 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 15 cm. The distance of the object from the lens is 10 cm. Find the position, size and nature of the image formed, using the lens formula.

8

The nature of the image formed by concave mirror when the object is placed between the focus (F) and centre of curvature (C) of the mirror observed by us is

- (a) real, inverted and diminished
- (b) virtual, erect and smaller in size
- (c) real, inverted and enlarged
- (d) virtual, upright and enlarged

9

The refractive index of transparent medium is greater than one because

- (a) Speed of light in vacuum < speed of light in transparent medium
- (b) Speed of light in vacuum > speed of light in transparent medium
- (c) Speed of light in vacuum = speed of light in transparent medium
- (d) Frequency of light wave changes when it moves from rarer to denser medium

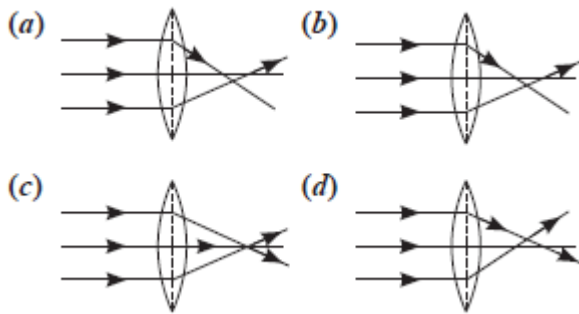
10

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

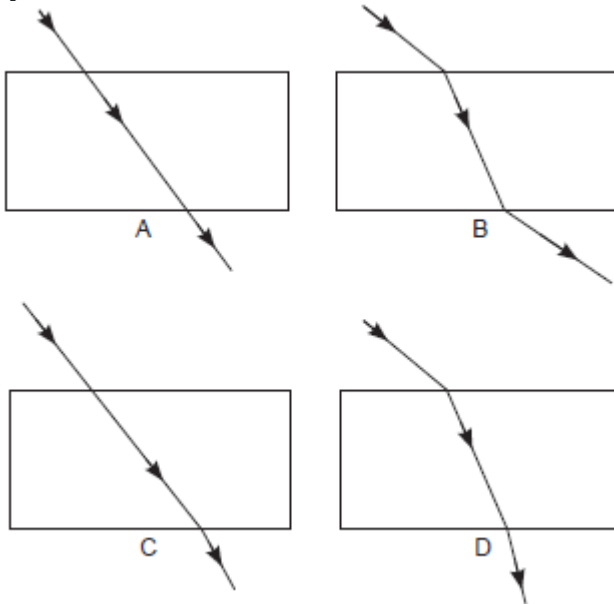
11

The distance between the optical centre and point of convergence is called focal length in which of the following cases?



12

The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown as A, B, C and D in figure. Which one of them is correct?



- (a) A (b) B
(c) C (d) D

13

The questions given below consist of an assertion and the reason. Use the following key to choose the appropriate answer.

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

Assertion: The word **AMBULANCE** on the hospital vans is written in the form of its mirror as **AMBULANCE** .

Reason: The image formed in a plane mirror is same size of the object.

14

The questions given below consist of an assertion and the reason. Use the following key to choose the appropriate answer.

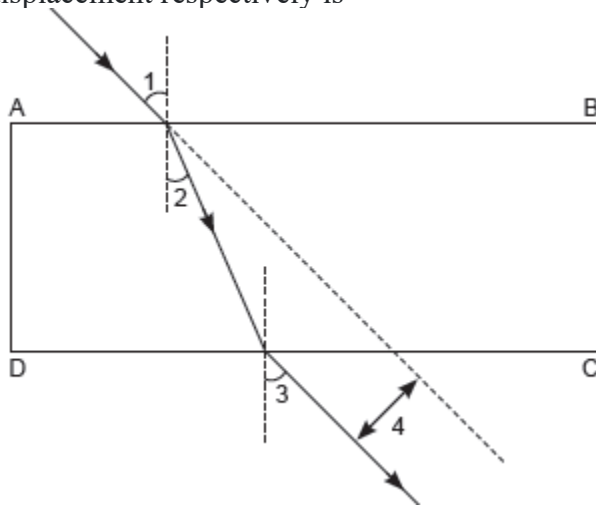
- (a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
- (b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
- (c) Assertion is true but the Reason is false.
- (d) The statement of the Assertion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

Assertion: Pupil is black in colour.

Reason: Pupil is black in colour as no light is reflected in it.

15

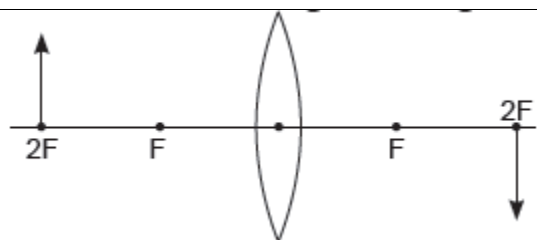
A student has traced the path of ray of light through a glass slab as follows. If you are asked to label 1, 2, 3 and 4, the correct sequence of labelling $\angle i$, $\angle e$, $\angle r$ and lateral displacement respectively is



- (a) 2, 1, 3, 4
- (b) 1, 2, 3, 4
- (c) 1, 3, 2, 4
- (d) 1, 3, 4, 2

16

For the diagram shown, according to New Cartesian Sign Convention, the sign of object distance, image distance and focal length for the given lens will be



- (a) $- , + , +$
- (b) $- , - , +$
- (c) $- , - , -$
- (d) $+ , - , +$