

MP BOARD CLASS 10 SCIENCE QUESTION PAPER WITH ANSWER 2017

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Q. 1. Fill in the blanks: ($1 \times 5 = 5$)

- (i) The radius of core of earth is _____ km.
- (ii) Mixture of Harrah, Bahera and Amla is called _____
- (iii) _____ is the biggest planet in the solar system.
- (iv) The writer of "Aryabhattiya" thesis is _____
- (v) One horse power = _____ Watt.

Ans. (i) 3400 km.

(ii) Triphala

(iii) Jupiter

(iv) Aryabhata

(v) 746

Q. 2. Choose the correct alternative : ($1 \times 5 = 5$)

- (i) Formation of curd is :
(a) Fast reaction (b) Slow reaction (c) Backward reaction (d) Forward reaction.
- (ii) The minimum distance vision for a healthy person is :
(a) 20 cm (b) 25 cm (c) 10 cm (d) 30 cm.
- (iii) S.I. Unit of electric current is :
(a) Kilowatt (b) Ampere (c) Ohm (d) Watt.
- (iv) Main component of biogas is :
(a) Methane (b) Butane (c) Propane (d) Ethane.
- (v) Lungs are located :
(a) In thoracic cavity (b) In abdominal cavity (c) Near intestine (d) Below pancreas

Ans. (i) (b) Slow reaction

(ii) (b) 25 cm

(iii) (b) Ampere

(iv) (a) Methane

(v) (a) In thoracic cavity

(a) In thoracic cavity (b) In abdominal cavity (c) Near intestine (d) Below pancreas.

Q. 3. Match the column : ($1 \times 5 = 5$)

`A' `B'

- (i) Blood group "O" (a) Formation of urea .
- (ii) Xylem (b) Sulphuric acid (H_2SO_4)
- (iii) Liver (c) Cinnabar (HgS)
- (iv) King of chemicals (d) Water transport in plant
- (v) Mercury (e) Universal donor
- (f) Nitric acid (HNO_3).

Ans. Match the column

`A' - `B'

- (i) Blood group "O" - (e) Universal donor
- (ii) Xylem - (d) Water transport in plant
- (iii) Liver - (a) Formation of urea .
- (iv) King of chemicals - (b) Sulphuric acid (H_2SO_4)
- (v) Mercury - (c) Cinnabar (HgS)

Q. 4. Write the answer in one sentence each : (1×5 = 5)

- (i) What is Chromosome ?
- (ii) Which vitamin is found in abundance in Amla ?
- (iii) Write Valency of carbon.
- (iv) What is Ore ?
- (v) What is Polythene ?

Ans. (i) Chromosomes are found in D.N.A. which contain the genetic material. It is a thread like structure which plays a very important role in reproduction.

(ii) Vitamin 'C' is found in abundance in Amla.

(iii) The valency of carbon is 4.

(iv) The minerals from which metals can be easily profitably and economically extracted are called Ores.

(v) Polythene is a compound which is formed by the polymerization of Ethylene.

Q. 5. Write the laws of Reflection. (2)

Ans. (i) Angle of reflection is always equal to the angle of incidence.

$$\angle i = \angle r$$

(ii) The incident ray, reflected ray and the normal at the point of incidence all lie in the same plane.

(OR)

Write uses of convex lenses (any two)

Q. 6. What is electroplating ? (2)

Ans. "The process of plating one metal on the surface of another metal by chemical effect of electric current is called electroplating. It is based on the principle of electrolysis."

(OR)

What is meant by 'one ampere' ?

Q. 7. 'What is the common name of Indian Space Research Organization ? (2)

(OR)

Write full name of INSAT.

Ans. The full name of INSAT is Indian National Satellite.

Q. 8. What is fermentation ? (2)

Ans. The process in which complex organic compounds are decomposed into simple organic compounds in the presence of an enzyme, is called fermentation.

(OR)

Write the main uses of alcohol. (any two)

Q. 9. Explain Gravity separation method of ore. (3)

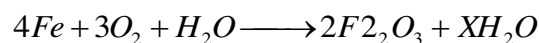
(OR)

What is rusting? Give chemical formula of rust.

Ans. The formation of corrosion of iron surface is called rusting of iron.

It is an unwanted process in which iron reacts with the atmospheric impurities, moisture and forms chemical oxides.

Equation-



Formula of rust = $Fe_2O_3 \cdot XH_2O$.

Q. 10. Compare the physical properties of metals and non-metals. (3)

Ans. **(Metals)**

- (i) State :- All the metals are solid except mercury.
- (ii) Malleability : Mostly metals are malleable except alkali metals
- (iii) Ductility :- Mostly metals are ductile.
- (iv) Conductivity :- Metals are good conductors of heat and electricity.

(Non-Metals)

- (i) Non-metals are found in solid liquid and gaseous state.
- (ii) Non-metals are brittle
- (iii) Non-metals are non-ductile
- (iv) Non metals are bad conductors of heat and electricity except graphite.

(OR)

What happens when : (Write chemical equation only)

- (i) Ammonia gas reacts with Hydrogen chloride (HCl)
- (ii) Sodium reacts with Water.
- (iii) Magnesium reacts with Oxygen.

Q. 11. What is Global warming? Write main reasons of Global warming. (3)

Ans. The green houses gases like CO_2 , methane, water vapour, etc get accumulate in the atmosphere due to various natural and man-made activities. These gases form a layer around the earth and absorb the solar radiation of short wavelength. After, they are converted into long wavelength radiations. These gases do not let them go back into the atmosphere and the temperature of the earth increases. This is called Global warming.

Main reasons of Global warming-

- (i) Green house gases like CO_2 , methane Ammonia are the main causes of global warming, due to which the temperature of earth increases.
- (ii) Chlorofluorocarbons are also one of the main causes of global warming.
- (iii) Human activities like breathing, swimming are also responsible for global warming.

(OR)

What are the sources of noise pollution? Write effects of noise pollution.

Q. 12. Write the medicinal importance of following plants : (3)

(i) Tulsi, (ii) Neem, (iii) Bahera.

Ans. Medicinal importance of following plants-

(i) Tulsi :- Tulsi is used to cure stomach disorders, cough and cold. It is worshipped by the Indians. It is used in making tea and Kadha. It is used to remove stomach toxins.

(ii) Neem :- It is used to purify blood and also used in insecticides due to its germ protection properties. Its branches are used to clean teeth. It also purifies the air.

(iii) Bahera : - It is used to cure stomach ache and to remove stomach toxins. It is also used to cure headache and fever. It is used in making triphala- an ayurvedic medicine.

(OR)

Write the classification of medicinal plants.

Q. 13. Explain Simple Microscope with diagram. (4)

(OR)

What is Myopia? Give its reason. Explain with the help of a labelled ray diagram how it is corrected.

Ans. Myopia :- A person suffering from this defect can see the nearer objects clearly but cannot see the far off objects.

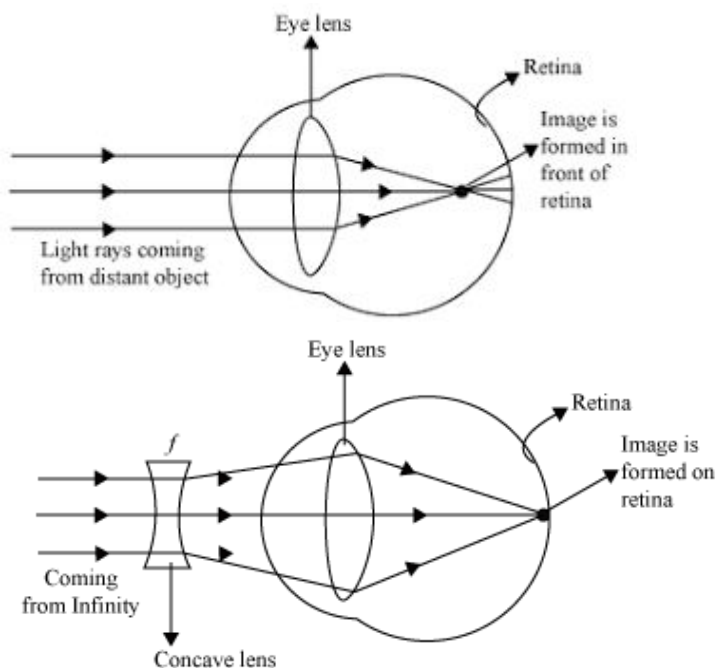
Causes of Myopia :-

(i) Sometimes the eyeball gets elongated and therefore the image of far off objects is formed in front of retina.

(ii) The curvature of lens surfaces increases i.e. the lens becomes thicker, due to which focal length reduces.

Correction of Myopia :-

In this defect the converging capacity of eye increases. Therefore, concave (diverging) lens is used to correct Myopia.



Q. 14. Draw a well labelled diagram of dry cell. (4)

(OR)

A charge of 4 coulomb is brought from a point at 220 V to another point at 230V. Calculate the work done.

Ans. Given, Potential difference = (230-220)

= 10 volt

Charge = 4 coulomb

P.D. = 10 volt

$$\text{Potential difference} = \frac{\text{Work}}{\text{Charge}}$$

$$10 = \frac{W}{4}$$

W = 40 joule

Work done = 40 joule

Q. 15. Write characteristic features of an ideal fuel. (4)

Ans. (1) High calorific value.

(2) Low ignition temperature.

(3) Cheap in cost.

(4) Balanced rate of combustion.

(5) Easily available and pollution free.

(6) Easy to store and safe to transport.

(7) Low amount of waste after burning.

(8) Absence of poisonous substances.

(9) Low percentage of non-combustible material.

(OR)

Draw labeled diagram of Wind mill and explain working principle.

Q. 16. Draw a labeled diagram of longitudinal section of flower. (4)

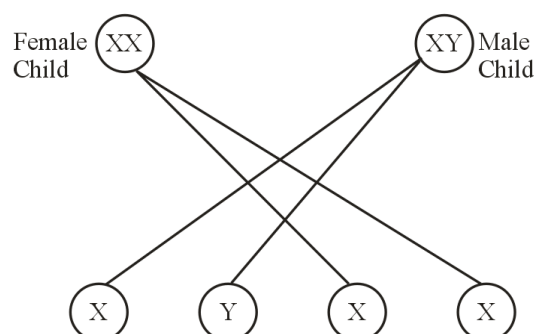
(OR)

Explain the sex determination process in human by line diagram.

Ans. In humans 23 pairs of chromosome are found. In which 22 pairs are autosomes and 23 pair is sex chromosome. In woman all the 23 pairs of chromosomes are XX but in man the 23 pair is 'Y'. If the X chromosome of man gets fertilized with X chromosome of woman, then a female child is produced and if the 'Y' chromosome of man gets fertilized with X chromosome of woman, then a male child is produced. Therefore male child is represented by 'XY' and a female child is represented by 'XX'.

Therefore 'Y' chromosome in man is responsible for sex determination and this whole process in humans is called sex determination.

Line diagram of sex determination-



Q. 17. What is Soap? Why are detergents better than soap? Explain it. (4)

Ans. Soap : - Soaps are sodium or potassium salts of higher carboxylic acids (fatty acid). Their general formula is $R-COONa$. $R=C_{17}H_{35}$ or higher carboxylic acids.

Soaps are prepared by hydrolysis of fats or oils by alkalies.

Detergents are considered better than soap because soap forms insoluble compound called scum with the hard salts like Ca & Mg present in hard water. But detergent does not form insoluble compounds with Ca & Mg present in hard water. Therefore, detergent gives foam even in hard water but soap does not give foam with hard water.

Detergents have more cleaning capacity than soaps, therefore detergents are better than soaps.

(OR)

How is ozone formed?

Q. 18. Write difference between Acid and Base (any four) and give the name of one strong acid and one strong base. (5)

Ans. (Acid)

- (1) Acids are sour in taste
- (2) Acid turns blue litmus paper into red.
- (3) Acid gives H^+ ions in aqueous solution.
- (4) Give CO_2 with metallic carbonates.
- (5) Neutralize bases giving salt and water.

(Base)

- (1) Bases are bitter in taste.
- (2) Base turns red litmus paper into blue.
- (3) Base gives OH^- (hydroxy) ions in aqueous solution.
- (4) Do not give CO_2 with metallic carbonates.
- (5) Neutralize acids giving salt and water.

Name of one strong acid :-

HCl (Hydrochloric acid)

Name of one strong base :-

NaOH (Sodium hydroxide)

(OR)

Write the name and formula of Bleaching powder and give four important uses of bleaching powder.

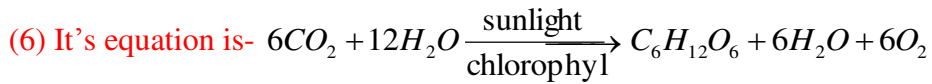
Q. 19. Write difference between photosynthesis and Respiration. (5)

Ans. Photosynthesis and respiration are different from each other. But they are interconnected.

Differences between photosynthesis and respiration are as follows-

(Photosynthesis)

- (1) In this process, water and CO_2 are synthesized to form glucose and oxygen in the presence of sunlight & chlorophyll
- (2) This process is constructive.
- (3) This reaction takes place only in sunlight.
- (4) In this process, energy is stored in the food.
- (5) This process takes place in green cells of plants only.



(Respiration)

- (1) In this process, complex organic compounds are decomposed into CO_2 and water.
- (2) This process is destructive.
- (3) This reaction takes place in dark as well as in light.
- (4) In this process, energy is released from food.
- (5) This process takes place in all the cells of plants and animals.
- (6) It's equation is- $C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$.

(OR)

What is liver? Describe the functions of liver in human beings.

Q. 20. Write differences of lymph and blood (any five). (5)

Ans. Difference between blood and lymph.

(BLOOD)

- (1) Blood is dark red in colour and a soft fluid connective tissue.
- (2) Red blood corpuscles are present in blood.
- (3) Blood is salty in taste.
- (4) It takes part in clotting.
- (5) Blood transports oxygen and CO_2 to different parts of the body.
- (6) Blood controls balance of water in body.
- (7) White blood corpuscles are present in less number.
- (8) It takes part in circulatory system.

(LYMPH)

- (1) Lymph is colourless and transparent material.
- (2) Red blood corpuscles are not present in lymph.
- (3) Lymph is tasteless.
- (4) It doesn't take part in clotting.
- (5) Lymph doesn't transport oxygen and carbon dioxide to various parts of body.
- (6) Lymph does not control balance of water in body.
- (7) White blood corpuscles are present in more number.
- (8) It doesn't take part in circulatory system.

(OR)

What is Haemodialysis? What are the reasons of Haemodialysis? Explain.