DEWAN PUBLIC SCHOOL
HAPUR

CLASS 10

SCIENCE QUESTION BANK

BIOLOGY

CHAPTER 1

LIFE PROCESSES

SHORT ANSWER TYPE

Q.1 Woody plants carry gaseous exchange through

a) root hair
b) Lenticels
c) stem hair
d) epidermal cells

2.Why is energy required by an organism even during sleep?

3.Name the various factors which affect the rate of photosynthesis.

4.Which is the major nitrogenous waste product in human beings? How is it removed from the body?

5. How is ‘respiration’ different from ‘breathing’? Explain the process of aerobic and anaerobic respiration.

6. I) Name the blood vessel that brings oxygenated blood to the human heart.

II) Which chamber of the heart received oxygenated blood?

III) Explain how is the oxygenated blood from this particular chamber sent to all the body parts?

LONG ANSWER TYPE

7. Explain the schematic representation of gaseous exchange in tissues.

8. Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structures and functioning?

9. What is the significance of emulsification of fats?

10. Why is the small intestine in herbivores larger than in carnivores?

11. What is the advantage if a four chambered heart?

12. Explain the process by which inhalation occurs during breathing in human beings?

13. In human alimentary canal, name the site of complete digestion of various components of food. Explain the process of digestion. [CBSE (CCE) 2012]

14. List in tabular form, three differences between arteries and veins. [CBS (CCE) 2012]

15. List the three kinds of blood vessels of human circulatory system and write their functions in tabular form. [CBSE I CCE) 2012]

16.(a) "The breathing cycle is rhythmic whereas exchange of gases is a continuous process". Justify this statement.

(b) What happens if conducting tubes of circulatory system develops a leak? State in brief, how could this be avoided?

(c) How opening and closing of stomata takes place? [CBSE (CCE) 2011]

17. Draw a diagram of the front view of human heart and label any six parts including at least two that are concerned with arterial blood supply to the heart muscles. [CBSE (CCE) 2011]

18. Describe in brief the function of kidneys, ureters, urinary bladder and urethra. [Foreign 2010]

19. Explain the process of breakdown of glucose in a cell

(i) in the presence of oxygen,

(ii) in the absence of oxygen. [HOTS,Foreign 2010]

20. (i) Label any 4 parts in the given diagram.

(h) What are the two functions represented in this diagram?

Chapter-2 Our Environment

SHORT ANSWER TYPE

1. What is bad ozone?

2. Differentiate between natural and artificial ecosystem.

3. Why are plastic bags non-biodegradable?

4. Why are pesticides considered as pollutants despite being useful to the farmers?

5. Give one advantage and one disadvantage of ozone.

6. Difference between biodegradable and non-biodegradable substance.

7. Why are green plants called producers?

8. Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment. (CBSE 2008)

9. Why is the ozone layer getting depleted at the higher levels of the atmosphere? (CBSE 2008)

10. Damage to ozone layer is a cause of concern. Justify this statement and suggest two steps to limit this damage. (CBSE 2008)

Chapter -3 Reproduction

LONG ANSWER TYPE

1. What is reproduction? Explain two advantages of sexual reproduction over asexual reproduction. Mention the importance of DNA copying in reproduction. (CBSE 2016)

2. List any two differences between pollination and fertilization. (CBSE2008)

3. Name two sexually transmitted disease caused due to bacterial infection and viral infection. How it can these be prevented? (AI 2008)

4. Explain the terms:

a. Implantation

b. Placenta

5. List any four methods of contraception used by humans. How does their use have a direct effect on the health and prosperity of a family? (CBSE 2015)

6. Describe in brief the role of (i)testis (ii) seminal vesicle, (iii) vas deferens, (iv)ureter and (v) prostate gland in human male reproductive system (CBSE 2012)

7.(a) Draw a diagram of the longitudinal section of a flower and label on it sepal, petal, ovary and stigma.

(b)Write the names of male and female reproductive parts of a flower.

8.(a)What is fragmentation in organisms? Name a multicellular organism which reproduces by this method.

(b)What is regeneration in organism? Describe regeneration in Planaria with the help of a suitable diagram. (CBSE 2011)

Chapter 4 Heredity and evolution

LONG ANSWER TYPE

1. Green and red colored seeds are recessive and dominant trait respectively. Out of F1 and F2 in which generation will the green seed appear, if both parents are not hybrid.

2. With the help of an example explain how genes control characteristics or trait

3. Male has 23 pairs of chromosomes and female has 23 pairs of chromosomes. Then why dont an offspring have 46 pairs of chromosomes which is obtained by the fusion of these two eggs.

4. "The sex of a newborn child is a matter of chance and none of the parents may be considered responsible for it". Draw a flow chart showing determination of sex of a newborn to justify this statement. (CBSE 2015)

5. Tabulate two distinguishing features between acquired traits and inherited traits with one example of each. (CBSE2013)

6. A cross was made between pure breeding pea plants one with round and green seeds and the Other with wrinkled and yellow seeds.

(a) Write the phenotype of F1progeny. Give reason for your answer.

(b) Write the different types of F2 progeny obtained along with their ratio when F1 progeny was selfed.

7. Explain Law of segregation and law of independent assortment with an example. (CBSE 2014)

8. What do you understand by phenotypic and genotypic ratio.

9. Explain law of Co Dominance with the help of blood group.

10. Explain the importance and disadvantages of variations.

Chemistry

Chemical Reactions and Equations Chapter 1

SHORT ANSWER TYPE

1. What is a redox reaction?

2. What is corrosion? Explain its advantage and disadvantage.

3. What is rancidity? How can we reduce the problem of rancidity?

4. What is meant by endothermic and exothermic reactions? Give suitable example for each.

5. Define different types of chemical reaction and give examples for each.

6. Why is photosynthesis considered as an endothermic reaction?

7. In electrolysis of water, why is the volume of gas collected over one electrode double that of the other electrode?

8. What happens when water is added to solid calcium oxide taken in a container? Write a chemical formula for the same.

9. Give three types of decomposition reaction

10. Balance the following chemical equation.

$Fe(s) + H_2O(g) = Fe_3O_4 + H_2(g)$

$MnO_2 + HCL = MnCl_2 + Cl_2 + H_2O$

$HNO_3 + Ca(OH)_2 = Ca(NO_3)_2 + H_2O$

Acids bases and salts- Chapter 2

SHORT ANSWER TYPE

1. Why is Plaster of Paris stored in a moisture proof container?

2. Mention two uses of baking soda and washing soda.

3. Why does a milkman add a small amount of baking soda to fresh milk to shift the pH of fresh milk from 6 to slightly alkaline?

4. Why do acids not show acidic behavior in the absence of water? Rain water conducts electricity but distilled water does not. Why?

5. Why don't we keep sour substances in brass and copper vessels?

6. What is the common name of CaOCl2? Give its uses

7. Name the compound used for softening hard water.

8. What happens when baking soda is heated? What is baking powder? How does it make the cake soft and spongy? **(CBSE 2008)**

9. How is the pH of a solution of an acid influenced when it is diluted? What would be the colour of litmus in a solution of sodium carbonate? **(CBSE 2008 F)**

10. Why does tooth decay start when pH of mouth is lower than 5.5? **(CBSE 2009)**

11. Name the products obtained when sodium hydrogen carbonate is heated. Write the chemical equation for the same. **(AI CBSE 2009)**

12. Write the chemical formula of washing soda and baking soda. Which one of these two is an ingredient of antacids? How does it provide relief in stomachache? **(CBSE 2008)**

13. What do you mean by water of crystallization of a substance? Describe an activity to show that blue copper sulphate crystals contain water of crystallization. **(CBSE 2009 F)**

14. How can washing soda be obtained from baking soda? Name an industrial use of washing soda other than washing clothes. **(AI CBSE 2008)**

15. Why does 1 M HCL solutions have a higher concentration of H^+ ions than 1M CH_3COOH solution? **(AI CBSE 2009)**

Metals and nonmetals- Chapter 3

LONG ANSWER TYPE

1. A metal 'X' loses two electrons and a non-metal 'Y' gains one electron. Show the electron dot structure of compound formed between them. Is ionic or covalent? Does it have high melting point or low? Will it conduct electricity in solid state or in aqueous solution and why? Will it be soluble in water?

2. A student was given Mn, Zn, Fe and Cu metals. Identify which of them

(a) will not displace H2 from dil. HCl.

(b) will react only with steam to give H2(g).

(c) Will give H2 with 5% HNO3.

Write the chemical reactions involved.

3. Compound X and aluminium are used to join railway tracks.

(a) Identify the compound X.

(b) Name the reaction.

(c) Write down its reaction.

4. A metal A, which is used in thermite process, when heated with oxygen gives an oxide B, which is

amphoteric in nature? Identify A and B. Write down the reactions of oxide B with HC1 and NaOH.

5. A non-metal A is an important constituent of our food and forms two oxides B and C. Oxide B is

toxic whereas C causes global warming.

(a) Identify A, B and C.

(b) To which group of periodic table does A belong?

6. An element A reacts with water to form a compound B which is used in white washing. The compound

B on heating forms an oxide which on treatment with water gives back B. Identify A, B and C and

give the reactions involved.

7. A non-metal A which is the largest constituent of air, when heated with H2 in 1 : 3 ratio in the presence of catalyst (Fe) gives a gas B. On heating with O2, it gives an oxide C. If this oxide is passed into water in the presence of air, it gives and acid D which act as a strong oxidising agent.

(a) Identify A, B, C and D.

(b) To which group of periodic table does this non-metal belong?

8. An element A burns with golden flame in air. It reacts with another element B, atomic number 17 to

give a product C. An aqueous solution of product C on electrolysis gives a compound D and

liberates hydrogen. Identify A, B, C and D. Also write down the equations for the reactions involved.

Name a reducing agent that may be used to obtain manganese from manganese dioxide. (CBSE 2009)

9. From amongst the metals sodium, calcium, aluminium, copper and mangnesium, name the metal (I) which reacts with metal only on boiling and

(II) another which does not react even with steam. (CBSE 2008)

10. (a) Show the formation of NaCl from sodium and chlorine atoms by the transfer of electrons.

(b) Why sodium chloride has a high melting point?

(c) Name the anode and cathode used in electrolytic refining of impure copper metal. (CBSE 2008)

Why are ionic compounds usually hard? How is it that ionic compounds in the solid state do not conduct electricity but they do so when in molten state? (CBSE 2008)

On adding dilute HCL acid to copper oxide powder the solution formed is blue-green. Predict the new compound formed which imparts a blue-green colour to the solution. (CBSE 2008)

SHORT ANSWER TYPE

1. (a) Show on a diagram the transfer of electron between the atoms in the formation of MgO.

(b) Name the solvent in which ionic compounds are generally soluble.

(c) Why are aqueous solutions of ionic compounds able to conduct electricity? (CBSE 2008)

2. What are amphoteric oxides? Choose the amphoteric oxides from- Na_2O, ZnO, Al_2O_3, CO_2, H_2O

3. Why is it that non-metals do not displace hydrogen from dilute acids? (AI CBSE 2008)

4. Show the electronic transfers in the formation of $MgCl_2$ from its elements. (CBSE 2008 F)

5. Name the two metals which react violently with cold water. Write any three observations you would make when such a metal is dropped into water. How would you identify the gas evolved, if any? (AI CBSE 2008)

PERIODIC CLASSIFICATION- CHAPTER-4

LONG ANSWER TYPE

1. How many groups and periods are there in the modern periodic table? How do the atomic size and metallic character of elements vary as we move:

(a) down a group and

(b) from left to right in a period (CBSE 2015)

2. Given below are some elements of the modern periodic table:

$_{4}Be$, $_{9}Fe$, $_{14}Si$, $_{19}K$, $_{20}Ca$

(i)Select the element that has one electron in the outermost shell and write its electronic configuration.

(ii)Select two elements that belong to the same group. Give reason for you answer.

(iii)Select two elements that belong to the same period. Which one of the two has bigger atomic size? (CBSE 2013)

3. An element M has atomic number 12.

(a)Write its electronic configuration.

(b)State the group to which M belongs.

(c)Is M a metal or a non-metal.

(d)Write the formula of its chloride. (CBSE 2012)

4. What physical and chemical properties of elements were used by Mendeleev in creating his Periodic Table? List two observations which posed a challenge to Mendeleevs Periodic Law. State any two limitations to Mendeleevs classification.

SHORT ANSWER TYPE

5. What is common among all the elements present in one period?

6. Name two alkali metals present in Group 1.

7. An element X belongs to II group and 2nd period. Write atomic number and name of element.

8. The electronic configuration of an atom is 2,8,7. Give its atomic number, nature of oxide.

9. Why are noble gases placed in a separate group?

10. Lithium, sodium potassium belong to same group called alkali metals. Why?

Carbon and it's compound- Chapter 5

1. Why covalent compounds have low melting and boiling points?

2. Diamond and graphite show different physical properties although they are made up of carbon and shows same chemical properties. What is the property called?

3. Why does carbon forms large number of compounds?

4. What is homologous series of compounds? List any two characteristics of a homologous series.

5. Show formation of Carbon tetrachloride and Ammonia.

6. Explain structural isomerism with the help of example.

7. Write the third member of Alkanes, Alkenes and Alkynes

8. How conductivity of diamond and graphite varies.

9. Name two other elements other than carbon which shows catenation.

10. Draw isomers of pentane.

Physics

Electricity

Two Mark Questions

1. Name the unit of (a) electrical resistance (b) resistivity

2. Define One Ohm

3. Define Resistivity

4. Determine the direction of conventional current?

5. What is electrical power? Write its unit.

Three Mark Questions

6. You take two resistors of resistance 2R and 3R and connect them in parallel in an electric circuit. Calculate the ratio of the electrical power consumed by 2R and 3R?

7. A small bulb has a resistance of 2Ω when cold. It takes up a current of 0.4 A from a source of 4V and then starts glowing. Calculate (i) the resistance of the bulb when it is glowing and (ii) Elaborate on the reason for the difference in resistance?

8. Define resistance and resistivity and also give the relation between them. Explain the dependence of resistance on temperature.

9. A bulb is rated at 330V- 110W. What do you think is its resistance? Three such bulbs burn for 5hrs at a stretch. What is the energy consumed? Calculate the cost in rupees if the rate is 70 paise per unit?

10. Calculate the resistance of 2 km long copper wire of radius 2 mm. (Resistivity of copper = 1.72 x 1 0-8)

11. What connection is used in domestic appliances and why?

12. A 250 watt electric bulb is lighted for 5 hours daily and four 6 watt bulbs are lighted for 4.5 hours daily. Calculate the energy consumed (in kWh) in the month of February.

13. A torch bulb is rated at 3V and 600mA. Calculate it's (a) Power b) Resistance c) Energy consumed if it is lighted for 4 Hrs.

14. State and derive joule's law. An electric iron consumes energy at rate of 420w when heating is at maximum rate and 180 w when heating is at minimum. The voltage is 220V .What is the current and resistant in each case?

15. A piece of wire having a resistance R is cut into five equal parts. (i) How will the resistance of each part of the wire compare with the original resistance?

(ii) If the five parts of the wire are placed in parallel, how will the resistance of the combination compare with the resistance of the original wire? What will be ratio of resistance in series to that of parallel.

Magnetic effect of electric current.

1. What does an electric current carrying wire behaves like?

2. How to define field lines?

3. What do you meant by solenoid?

4. What do you understand by electromagnet?

5. Draw the magnetic field lines due to current through circular loop.

6. State the properties of magnetic field lines?

7. State the similarity between solenoid and bar magnet. Also a difference between solenoid and coil?

8. Explain Fleming's left hand rule.

9. State Fleming's Right hand rule.

10- Which rule helps to determine magnetic field. State it also.

LIGHT: REFECTION AND REFRACTION

1. What is the magnification of a plane mirror

2. What is the radius of curvature of plane mirror?

3. Why paper catches fire when a convex lens is used to ficus sunlight?

4. What is silvering of mirror?

5. What is refractive mirror?

6. State the formula, lens formula and power of lens

7. The refractive index of water is 1.33 and kerosene is 1.44. Calculate refractive index of the kerosene with respect to water.

8. What kind of mirrors are used in big shopping stores to watch activities of customers?

9. Give mirror image of word AMBULANCE

10. The magnification produced by a plane mirror is +1. What does it mean?

The Human eye and the colourful world.

1-Why does ray of light splits when passed from prism?

2-Why doesnt planet appear to be twinkling?

3- How is rainbow formed?

4- Why do stars twinkle?

5- why are danger signal red in colour?

6-Draw the diagram to show incident ray, refracted ray,emergent ray,angle of incidence, angle of refraction, angle of emergence and angle of prism.

7- why does the sun appear reddish in the morning as well as in the evening?

8- why colour in the spectrum deviate the least and which colour the most?