

KENDRIYA VIDYALAYA SANGATHAN REGIONAL OFFICE RAIPUR

VALUE BASED QUESTIONS

SUB : CHEMISTRY

CLASS : XII

SESSION- 2012-13

UNIT 1 SOLID STATE

- Q.(1)** In a sample of salt, Mohit detected some $MgCl_2$. Based on that he predicted cation vacancy imperfection but Rohit said metal excess defect. Whom would you support and why? Write at least two values each Mohit and Rohit do possess.
- Q.(2)** Rajesh visited Bheraghat (Jabalpur, M.P.) last summer vacation. There he observed a definite cleavage pattern on marble rocks. He started of thinking as to which class of solids does marbles belong to? Now name the class and write down the general properties of this class of solids? In your opinion what value is reflected in this case?
- Q.(3)** Roja and Ramya were studying about the properties of solids. The solid which was under investigation showing properties like insulator in solid as well as in molten state, very hard, very high melting point. Roja thought it was crystalline solid but Ramya said it would be covalent solid. Whom do you favour and why? What value is indicated by this?
- Q.(4)** For practical purposes Ravish wanted to make a permanent magnets from one magnet he has. He has some metals stripes of Cu, Zn, Co and Nickel. Which metal do you think he may choose and why? Write the value associated with.
- Q.(5)** Shailesh being student of Chemistry and Physics well known about components of digital camera, computers, Television sets etc. An important component common to all of these gadgets is a material which is a combination of group 13 and group 15 elements with group 14 elements. Name this component and also the class of solid. Shailesh wrote all the answers very correctly in the examination. What moral values does shailesh possess write any two?

UNIT 2 SOLUTION

- Q.(1)** A container is divided by a semipermeable membrane. In one compartment 1 molal glucose solution is taken and in another compartment 1 molal NaCl solution is taken. Shruti expect the level of 1 molal NaCl solution will increase but Prema says level of 1 molal glucose solution will increase. Whom do you support and why? Which value is associated with it?
- Q.(2)** Persons need replacement of body fluid or nutrients which can not be fed orally are administrated solutions by intravenous infusion. To prevent crenation or hemolysis of red blood cells the I.V. solution must be isotonic with intracellular fluids of the cells. Why is it so? What values (any two) are found to be defeated if a Person suggested to feed above item orally?
- Q.(3)** The formula of common salt is NaCl and its calculated molar mass is 58.5. When the molar mass of common salt is determined by measuring the osmotic pressure of its 0.5 molal aq. solution it comes to be different than 58.5. Bhargavi thought it because of calculation mistake but Bharat says it there is no calculation mistake and he can correct the answer. How can Bharat correct the answer? What moral value do you find?

- Q.(4) John and Praisya were on their way to Laddakh in their winter break holidays by their own car. On the way they stayed for refreshment, meanwhile John was filling water in the radiator of the car. On seeing Praisya suggested to mix up some ethyl alcohol she had with her. John surprisingly asked why? Answer the query of John and also write the value associated with it.
- Q.(5) Akshay along with his father were going to Srinagar by their own car. Their journey was interrupted by road block due to heavy snow fall. Get got down and observing the situation, meanwhile his father said it is melting property of water responsible for road block and its melting property of water which will help to clear the road. Hearing this Akshay looked his father with question mark in his mind. Explain the statement of his father and write one value associated with it.

UNIT 3 ELECTROCHEMISTRY

- Q.(1) Manu and his father went to a shop to purchase a battery for their inverter. Shopkeeper showed them two types of batteries, one with lead plates and another with cadmium plates. The battery with cadmium plates was more expensive than lead battery. Manu's father wanted to purchase lead battery as it was cheaper.
- After reading the above passage, answer the following questions:
- As a student of chemistry, why would you suggest to Manu's father to buy the expensive cadmium plate battery. Give two reasons
 - What are the values associated with the above decision?
- Q.(2) In newspaper Yogesh read that iron pipes of sewerage system of the town will be protected by cathodic protection method (sacrificial method). His friend Juned said in this method something will replace iron to protect it from rusting. Explain the above method for Yogesh and also write the value associated with.
- Q.(3) Sanjay went to buy dry cell for wall clock. His father instructed him to check date of manufacturing before buying the cells. Sanjay was wondering if buying new cells with seal packed what to do with manufacturing date. If Sanjay is write? Give your opinion and the value associated with.
- Q.(4) Uday was performing an experiment to show deposition of sodium metal. He need a compound of sodium as an electrolyte. He selected cheapest and easily available common salt for that. He was suggested by his teacher that not to use solid NaCl or its aq. solution for that. What then you suggest for him? Explain your answer and write the value you get from this.
- Q.(5) Ramesh and Suresh went to buy lead storage battery for their vehicle. They went to a shop. Ramesh was interested to read the details like internal volume, no of plates of Pb and PbO₂ etc. What do these information's have to do with efficiency of the battery? Explain your answer and write one value associated with.

UNIT 4 CHEMICAL KINETICS

- Q.(1) Akash and his friends were going on picnic at Shillong peak. Along with other requirement he packed pressure cooker also for cooking food. Anish objected, saying at high altitude it is of no use as atmospheric pressure would be less and cooking of food will take much time. He was insisting to have readymade food items. Akash said pressure cooker will work effectively there also. How far you are agree with Akash? Write the value associated with each of Akash and Anish.
- Q.(2) Anusha's mother was trying hard to burn a big lump of coal faster for cooking food. Anusha wanted to help her mother in this regard. But she was not getting any idea. After studying chemical kinetics chapter she got the idea. What idea came in her mind? Explain and also write the value associated.
- Q.(3) The half life for radioactive decay of ^{14}C is 5730 years. An archaeological artifact contained wood had only 80% of the ^{14}C found in a living tree. Estimate age of the sample. Also write two more importance of radio-isotopes in our every day life. Mention the value associated with the use of isotopes in our daily life.
- Q.(4) In the lesson chemical kinetics Robin studied about need of activation energy and energy barrier for every chemical reaction. What is the significance of energy barriers in chemical reactions in our life? How does this help to stop destruction of life on the earth surface? What value is conveyed by this situation?
- Q.(5) Anuj and Sukhbeer visited a car manufacturing company. They saw different sections and found that different parts of cars are made in very large number but the rate of manufacturing of car is very less than their number because each part is not made in equal number. Does this concept help us to understand the concept of order of a reaction? Explain your answer reflecting a suitable value.

UNIT 5 SURFACE CHEMISTRY

- Q.(1) Wasim observed that the barber applied alum on the face of his customer. He also observed her mother dissolving alum to purify muddy water. How do these two observation relate to the concept of colloidal solution and its properties. Write the value associated with.
- Q.(2) "Shake well before use" is a very common precaution written on syrup take as medicine. Why is it so? If Raghvendra didn't followed the instruction ever after reading the precaution, what value do you observe defeated in the this case.
- Q.(3) People who prepare for fire fighting use mask preferably in place of covering their face completely. Why do they so? Write the value associated with.
- Q.(4) There was crowded place where fire broke out abruptly, a person Mr. David who was standing there advised to other person to put Gas Mask in, so that poisonous gases could be adsorbed. Does it adsorb gases like N_2 and O_2 equally? Explain your answer citing a suitable value possessed by Mr. David.
- Q.(5) Milk and Cold cream are the examples of colloidal system. Which type of colloid are they? Can we dilute them by adding water? Mrs.Nainy being student of chemistry brought the samples of Milk and Cold cream and tried to dilute them and performed experiment before writing answer. Why did she do so is there any value do you find here.

UNIT 6

GENERAL PRINCIPAL & PROCESSES OF ISOLATION OF ELEMENTS

- Q.(1) Rohit found that Steel is the most useful variety of iron. A High Quality steel can be made by adding desired proportion of metals such as Cr, Ni, Mn, W, V etc. One of the varieties of steel is used in making of electromagnets and cables for oceans. Another variety of steel is used for making pipes for carrying acids. While using steel for the purpose of steel pipes to carry Acid and prepare Electromagnets which type steel should Rohit get and doing so what are the main points Rohit must think over and what values do you find justifies the selection in this case.
- Q.(2) The prime ore of some important metals like Cu, Fe, Zn, Al etc. are CuFeS_2 , Fe_2O_3 , ZnS and Al_2O_3 respectively. Can these metal be extracted form any other ore? If yes explain your answer and write value associated with it.
- Q.(3) Iron exists in three commercial varieties. They vary in their carbon contents. One variety is used for casting articles like pipes, gutter and railway sleepers, second variety is used for making magnets, nails, bolts, chain etc. and the third variety is most useful and its quality can be improved by adding metals like Ni, W, Mn, Cr etc. based on above uses, write the important properties of these varieties as per utilization of iron for different purpose. What value (any two) are essential while selecting the best fit iron in above case?
- Q.(4) Gangue is an undesirable part of ore. Based on the nature of the ore different concentration methods are used. Silica is a common type of impurity. If you go through metallurgy of different metals you will find that silica is always not undesirable but useful also. Explain the above fact with suitable example and also mention the value behind it if Rohit finds that even a few undesirable material could be proven the most useful. What value does this thinking of Rohit possess?
- Q.(5) In the process of froth floatation collectors (pine oil) and depressants (NaCN) are used for different purposes. Explain how the use of depressants technically and economically beneficial for us. Write any one value related with it.

UNIT 7

'p' BOLCK ELEMENTS

- Q.1 Sumit in the market, while shopping, heard two people talking about purchasing good amount of Nitric Acid from market to take to the local dense forest, and got an alert & immediately followed and observed all of the activities, very carefully till they were in the market. In your opinion why did Sumit get an alert, why did he suspect and follow them? Write any two values Sumit possesses, the what probable doubt had Sumit in his mind.
- Q.2 Rakesh and Kamal were in discussing about the acidic strength of halogen acid. Rakesh said that HCl is stronger acid so it should be used for etching of glass in making of thermometers, burettes etc, HF should be used. Whom do you favour and why? Give the value which emerges from your answer.
- Q.3 Ankita and Sweta visited an art exhibition. They appreciated the paintings displayed there. Sweta observe black spots on white paint in a nice painting. She tried to remove them using cloth but she could not, then she recalled what she learned in 'p' block elements. She thought that pale blue colour gas found in upper atmosphere can remove these stains. You are expected to appreciate Sweta and explain the process to remove the black spots from white painting. What value is reflected from this?

- Q4.** In their final practical exam Ajay and Ankit both required ammonia solution they asked the lab attendant. He gave them sealed bottle of ammonia solution. Ankit was about to open the seal instantly but Ajay stopped him to do so. Who is right? What Ajay wanted to do? Explain it reflecting the value we may get from the answer.
- Q5.** While working in chemistry laboratory, Accidentally, Kavita's upper arm came in contact of conc. H_2SO_4 , she cried in pain. Sonali rushed with NaOH solution to pour on her hand but She preferred to keep the affected area under running water. Whom you will favour and why? What value you learn from this?

UNIT 8 'd' AND 'f' BLOCK ELEMENTS

- Q.1** An orange colour compound of chromium is very useful to detect presence of alcohol in air breathed out. The colour of the compound changes in the presence of traces of alcohol. Write the colour which develops. And also explain the process with suitable chemical equation.
- Q.2** A mixture of $\text{K}_2\text{Cr}_2\text{O}_7$ crystals and conc. H_2SO_4 was added in four test tube containing KI, H_2S , CH_3CHO and NaBr respectively. It was followed by strong heating. Identify in which tubes, the following changes will be observed. Support your answer with suitable chemical equations. Write associated values.
- Q.3** Gas 'A' and gas 'B' both turns $\text{K}_2\text{Cr}_2\text{O}_7$, in acidic medium, to green. Gas 'A' also turns lead acetate paper black. as 'A' is passed into gas 'B' When in an aq. solution, yellowish white turbidity appears. Identify gas 'A' and gas 'B' and explain the reaction. Write associated values.
- Q.4** In our every day life we use a good number of magnetic and electronic devices. They are made of different chemical compounds. In your opinion which type of elements/compounds are used to make such devices and why?
- Q.5** Lanthanoids were known as 'rare earth elements'. Now a day this name is irrelevant. These metals are seldom used in pure state. Give reason for above fact. Cerium is used in glare reducing spectacles. What property of cerium is reflected from this? Also write the value associated with it.

UNIT 9 COORDINATION COMPOUNDS

- Q1.** There are some complex compounds which are known as chelate complexes. Their extra stability is quite useful in medical science to cure cases of metal poisoning. Explain and identify the value being expected.
- Q2.** As per the Medical Report, Mohit found to be affected with the dearth of Hemoglobin in his Blood, Mohit being the student of Chemistry was known to the fact that there are many complex compounds found in nature with specific metal atom/ion. Such a few complexes are Chlorophyll, Blood pigment, Vitamin B_{12} etc. Will this knowledge help, any way, to recover from the dearth of Hemoglobin to Mohit, what sort of value you find associated with, in this particular instance?
- Q3.** Anurag has selected a science project to estimate the hardness of water samples collected from different places. He went to water testing laboratory of his city. There he came to know about some specific terms like 'titration' and 'EDTA'. Explain these terms. How far his project may be useful for the local habitants?

- Q4.** When Raghav came to that his sister is suffering form deficiency of iron he innocently brought some iron powder and asks his sister to eat? Is he right? Justify your answer. In what ways iron ion is absorbed in our body?
- Q5.** In four different beakers solutions of $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$, $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$, $[\text{Ni}(\text{CN})_4]^{2+}$ and $[\text{Ni}(\text{CN})_6]^{4-}$ are kept and white light from same source is allowed to fall on them. Would they appear similar in colour? Do $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ and $[\text{Ni}(\text{CN})_4]^{2+}$ only appear same? Explain your answer. Write the value associated with it.

UNIT 10 HALOALKANES AND HALOARENES

- Q1.** Antiseptic are antimicrobial applied on living tissues. Tincture of iodine is a common example. Rewati had read that Iodoform also possesses an appreciable antiseptic property. How will you explain this? Identify the value associated with it.
- Q2.** Some halogen containing compounds are useful in daily life. Some compounds of this class responsible for exposure of fauna and flora to more and more UV light which causes destruction to a great extent. Name the class of the compound. In your opinion, what steps to be taken to minimize harmful effects of these compounds?
- Q4.** Chlorine gas was used earlier to bleach paper. Tetrafluoroethane was used as dry cleaning solvent. Now a day their used has been minimized. How would you justify this? What value is plays important role in this case?
- Q5.** A sweet smelling organic compound 'A' is slowly oxidized by air in the presence of light to a highly poisonous gas. On warming with silver powder, it forms a gaseous substance 'B' which is also formed by the action of calcium carbide on water. Gas 'B' is also used to make metallic objects reusable. Identify 'A' and 'B'. Write the values associated to use the reagent as minimum possible to conduct this chemical reaction.

UNIT 11 ALCOHOLS , PHENOLS AND ETHERS

- Q1.** Consumption of alcoholic beverage is harmful for our health. Still people consume them. Alcohol supplied for industries, hospitals and for laboratories are also consumed by addict persons. How can this practice be stopped or minimized? Suggest some ways.
- Q2.** We often read in news paper that many people die or hospitalized due to consumption of poisonous alcoholic beverage. What actually is this? How can the effect of poisoning be neutralized /cured? Write the value associated with it
- Q3.** Phenol is very important compound. Name its natural source along with the process followed to prepare it commercially. It has disinfectant property. Can this be used as antiseptic? Explain your answer and indicate the value associated with it.
- Q4.** Power alcohol and Natalite have a common use. Write their chemical composition. Does this information help you any way? Explain and write the value associated with it.
- Q5.** An organic compound with molecular formula $\text{C}_6\text{H}_6\text{O}$ is widely used in preparation of plastics and related materials. It is also used to prepare antiseptic/disinfectants. It is basically extracted from coal tar. Its vapors are corrosive to the eyes, the skin, and the respiratory tract. Write its structural formula and reaction with benzene diazonium chloride. What is the importance of this reaction? Write any one value associated with it?

- Q4.** Creatinine is a break-down product of creatine phosphate in muscle, and is usually produced at a fairly constant rate by the body. It belongs to amines. Its presence can be tested in our blood and urine. Does this test help us to be aware of our health? Explain. Write the value associated with it.
- Q5.** A primary amine RNH_2 can be reacted with $\text{CH}_3\text{-X}$ to get secondary amine RNHCH_3 but the only disadvantage is that 3° amine and quaternary ammonium salts are also obtained as side products. Can you suggest a method where RNH_2 forms only 2° amine? Does knowing special method of preparation of a compound someone has any of 02 values think and write.

UNIT 14 BIOMOLECULES

- Q1.** Starch is one of the most important food material for all of us. But Rajesh was advised by his Physical not to avoid it, as he was suffered with Diabetes Mellitus, but one day while his trip to forest he strayed from the route and kept on going to find the right path but in vain, finally he completely tired off and had no appetite, on searching for food he found nothing to eat except a few sweet potatoes he carried in a small bag with him by mistake from his home. Now answer whether to eat these sweet potatoes, justify your answer supporting the any 2 values associated with.
- Q2.** Sudha when taught by the teacher in the class room that vitamin B_{12} contains a metal ion, now after the class when student will go to home they will find the tell the name of the Metal ion tomorrow, but Sudha immediately after during the interval time went to the Computer lab and requested the teacher to surf the net and traced the name of the metal ion, now write down the name of the metal ion state at least 2 moral virtues possessed by Sudha
- Q3.** DNA and RNA are the two important nucleic acids present in our body. They are very important in our life. Study of DNA is very useful in investigation of criminal cases and finding. In what ways study of DNA is useful to us? Explain. Write the value associated with this.
- Q4.** In our diet we include good amount of plant products rich in cellulose but such diet is not nourishing. Explain the value you have learned about biomolecules.
- Q5.** On medical checkup Snajit got to know that his vision is getting poor slowly. As soon his younger brother came to know the fact he rushed to the market to bring some mangoes, carrot & papaya, Why, what values do you find his younger brother possesses.

UNIT 15 POLYMERS

- Q1.** Synthetic polymers can not be degraded in the nature for a long time. How can biodegradable synthetic polymers be made? Why do we need Synthetic polymers at all? What value you assign to replace Synthetic polymers by biodegradable Synthetic polymers. What values are associated when a person selects biodegradable polymers.
- Q2.** Low density polythene and high density polythene, both are polymers of ethene but there is marked differences in their properties. Explain keeping certain value in mind.
- Q3.** Ramesh went along with his father to buy new tyre for their vehicle. He found that his father is more interested to know about the chemical composition of the rubber used, presence of cross linkages in the used rubber. How far you agree with his father's questions? Does it have any value?
- Q4.** The electrical switches used in our home are made of bakelite? Why? What are values there in selecting this polymer in this case?

Q5. What is the primary feature necessary for a molecule to make it useful in a condensation and addition polymerization? Polymerization is very useful synthesis. Write its advantages and disadvantages of it. What value is associated with it?

UNIT 16
CHEMISTRY IN EVERYDAY LIFE

- Q1.** Synthetic detergents have advantage over usual soaps as far as cleansing power is concerned. But the use synthetic detergents over a long period should be avoided. What value you conveyed by this Question? How can we minimize the concerned problems?
- Q2.** Ravi brought an artificial sweetener to prepare tea for his diabetic father, on seeing Aspartame in the level of the packet his father advised not to use that artificial sweetener. What reason do you find behind his advice? What value is indicated by this?
- Q3.** Narcotic drugs are banned by the govt. but it is grown and produced under supervision of govt. Why is it so? Do you find any value behind this? Write about.
- Q4.** Sugar is the main source of energy as it produces energy on metabolic decomposition. But this days low calorific drinks are more popular, why? Which value is associated with it?
- Q5.** Aspirin is an analgesic but it is also advised to heart patients. Does it work as analgesic for them? Support your answer with suitable reason and also indicate value associated with it.
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