



The Indian Academy
Nehrugram DEHRADUN
Question Bank – 2013-14
Subject - CHEMISTRY
Class - X

One marks each

1. Give IUPAC name of HCOOH
2. Write molecular formula of ethanoic acid.
3. What are oxidizing agent.
4. Define eastrification
5. What is catenation
6. Give the electronic dot formula of Acetic acid.
7. Name of the C allotrops
8. What is hydrogenation write electron – dot structure of sulphur S₈)
9. Define free redical
10. Define isomer.
11. What are the used of fullerenes?
12. What is Dobereiner's trial
13. Why is electron affinity of Halogens high ?
14. Why electron affinity of Be and Mg are Zero?
15. Who discovered modern periodic table?
16. Ethanol reacts with phosphorus pentacholoride to form chloroethane. What is this reaction
17. What is micelle?
18. What is understood by the term saturated hydrocarbon?
19. Which is the most reactive metal?
20. Write IUPAC names of the following compounds.
 - a) CH₃ – CH₂ – CH₂ - I
 - b) Br – CH₂ – CH₂ – CH₂-C + CH
21. What is atomic no. of potassium?

2 Marks

- Q1 What is periodicity? What is the cause of periodicity?
- Q2 Arrange Na, Rb, K and Mg in order of increasing atomic radius.
- Q3 Why is electron affinity of halogens high?
- Q4 Why is electron affinity of noble gases zero.
- Q5 What are electropositive and electronegative elements? Explain with one example of each.
- Q6 Which element has
- Two energy shells both of which are filled with electrons?
 - The electron configuration 2, 8, 2?
- Q7 What is electron affinity? Give example.
- Q8 What is electronic configuration?
- Q8 State Mendeleev's periodic law.
- Q9 How many periods and groups are there in the modern periodic table?
- Q10 What is Newland's law of octaves?
- Q11 Draw electron – dot and molecular structures of methane. What type of bond is present between atoms of carbon and hydrogen in methane?
- Q12 What is cracking? Illustrate with one example
- Q13 Explain a) Photocatalysis b) dehydration
- Q14 State four uses of ethanoic acid / in the daily life
- Q15 What is hydrogenation? What is the industrial application.
- Q16 What happens – when ethanol reacts with ethanoic acid in the presence of conc. Sulphuric acid
- Q17 Why have detergents replaced soap for washing clothes in hard water?
- Q18 Why is sodium chloride added in the manufacture of soap from oils.

Q19 Write electron – dot – structure of CO₂ and SO₃

Q20 Ethane and chlorine reacts together to form mono chloromethane.

- Write down a chemical equation for the reaction
- What type of reaction has taken place between ethane and chlorine

3 marks

Q21 Explain the formation of scum when hand water is treated with soap.

Q22 What is metallic character? Is there any other name for this property. How does metallic character vary?

- In a group
- in a period

Q23 Define the term ionization energy electron affinity and atomic radius.

Q24 Define

- atomic radius
- Periodicity
- Electron affinity

Q25 In group I of the periodic table, their elements X, Y, Z have ionic radii 133pm, 95 pm and 60pm respectively. Giving a reason arrange these elements in order of increasing atomic number in the group.

Q26 Where do you think hydrogen be placed in the modern periodic table?

Q27 Given by the side is a part of the periodic table as we move vertically downward from H to Fr.

- What happened to the size of atom.
- What happens to their metallic character.

Q28 Write the symbols for

- The most active Halogen
- A metal belonging to group-15
- Two non-metals belonging to group 16

Q29 Write differences between oxidation and reduction reaction with example.

Q30 Why are carbon and its compounds used as fuels for most application.

3 Marks

Q What is homologous series? Explain with an example

Q What is meant by cracking? Write chemical equation for the products obtained by cracking of Hexane.

Q What is meant by substitution reaction explain with one example.

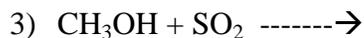
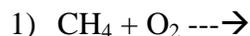
Q9 What happens when –

- a) Methane reacts with chlorine in the presence of sunlight.
- b) Methane burns in a limited supply of oxygen.
- c) Methane burns with excess of oxygen

Q10 Write the IUPAC and common names of –

- a) C_2H_6
- b) CH_3OH
- c) C_2H_5OH and
- d) CH_3COOH

Q11 Complete and balance the following equations



Q12 An organic compound A of molecular formula C_2H_6O on oxidation gives a compound B with the same number of carbon atoms as in the molecular of A. The compound A is often used for sterilization of skin by doctor. Name the compound A and B. Write the chemical equation involved in the formation of B from A

- Q13 The molecular formula of an ester is $C_2H_5COOC_2H_5$. Write the molecular formula of the alcohol and the acid from which it might be prepared.
- Q14 What are the difference between hand soap and soft soap?
- Q15 Explain why soaps do not give lather with hard water easily.
- Q16 Describe modern process for manufacture of soap.
- Q17 Write the molecular formula of two homologous of Hexane.
- Q18 Give differences between soap and synthetic detergent.
- Q19 Why are the thermal power plants set up near coal or oilfields?
- Q20 Write electron dot structure of cyclopentane.

5 Marks

- Q1 a) Why does the carbon form the longest no. of compound? Give any two reasons.
b) Why some of these are called saturated and other unsaturated compounds? Which of these two is more reactive?
- Q2 Describe the process by which soap is prepared explain the cleansing action of soap.
- Q3 Name the raw materials used for making soaps. Describe how you will prepare soap in the laboratory.
- Q4 Write the names of the compound
- 1) CH_3-CH_2-Br
 - 2) $H_2C-CH_2-CH_2-CH_2-C\equiv CH$
 - 3) $H_3C-CH_2-CH_2-CH_2-CH_2-OH$
 - 4) $CH_3-CH_2-CH_2-C\equiv OH$
 - 5) $CH_3-CH_2-CH-CH_2-CH_2$
- Q5 Describe briefly the usefulness of the periodic table.

- Q6 What is meant by electron affinity? What are the factors which determine the magnitude of ionization energy? What are the trends of variation of ionization energy in the periodic table.
- Q7 Explain electro negativity. How is it different from electron affinity?
- Q8 Define the terms
- a) Ionization energy
 - b) Electron affinity
 - c) atomic radius
- Q9 Where do you think should Hydrogen be placed in the modern periodic Table.
- Q10 How could modern periodic table remove various anomalies of Mandelav's periodic table.
- Q11 How does metallic character of elements vary on moving from?
- i) Left to right in a period
 - ii) From top to bottom in a group
 - iii) Give reason for your answer.

MCQ

Section B

Q1 Acetic Acid was added to four test tubes containing the following chemicals

- a) Sodium carbonate
- b) Blue litmus solution
- c) Lime water
- d) Distilled

Which amongst these is/are correct options for carrying out a characteristic test for identification of a carboxylic acid (acetic Acid) in the laboratory?

- A) A Only B) B Only
- C) A And B D) C and D

Q2 On adding concentrated NaOH solution to a test tube containing phenolphthalein, the colour change observed by a student would be

- (a) Pink to colorless
- (b) Pink to blue
- (c) Colorless to pink
- (d) Red to blue

Q3 A student added Acetic acid to test tubes I, II, III IV.

The lighted candles would be extinguished when placed near the mouth of the test tube.

- a) I and II b) II and III
- c) II and IV d) I and IV

Q4 A student while observing the properties of Acetic Acid would report that this acid smells like.

- a) Vinegar and turns red litmus blue
- b) Rotten egg and turns red litmus blue
- c) Vinegar and turns blue litmus red.
- d) Rotten egg and turns blue litmus red.

Q5 Soap is a sodium or potassium salt of

- a) Mineral Acid
- b) Acetic Acid
- c) Oxalic Acid
- d) Higher fatty acid

Q6 Hardness of water is due to dissolved

- a) NaCl b) Na₂SO₄
- b) CaSO₄ d) NaHCO₃

Q7 When sodium carbonate is added to acetic acid. CO₂, is produced. The other product of the reaction is/are

- a) Sodium acetate and water
- b) Water only
- c) Sodium Acetate only
- d) None of these

Q8 The molecular formula of Acetic Acid is

- a) CH₃COOH
- b) CH₃ CH₂ CH₂ COOH
- c) CH₃ CH₂ COOH
- d) HCOOH

Q9 Vinegar is

- a) 5-8% Acetic Acid

- b) Acetic Acid of any concentration
- c) 100% Acetic Acid
- d) 50% Acetic Acid

Q10 Ethanoic Acid is

Highly soluble in water

- a) Moderately soluble in water
- b) Moderately soluble in water
- c) Insoluble in water
- d) Slightly soluble in water

Q11 Which of the following gas is produced when acetic Acid reacts, with sodium carbonate solution?

- a) CO
- b) CO₂
- c) O₂
- d) H₂

Q12 When Acetic Acid is heated with ethyl alcohol in the presence of Conc H₂SO₄

- a) Aldehyde is produced
- b) Ketone is produced
- c) Ester is produced
- d) None of these

Q13 When Zn or Mg reacts with Acetic Acid, the gas evolved

- a) CO₂
- b) H₂
- b) O₂
- d) None

Q14 What is odor of Acetic Acid?

- a) Vinegar – like smell
- b) Foul smell
- c) Odorless
- d) Pleasant smell

Q15 The melting point of Acetic Acid is

- a) 373 K
- b) 273 K

- c) 391 K d) 290 K

Q16 Which of the following has lowest PH?

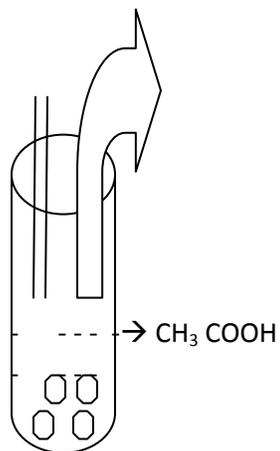
- a) CH_3COOH b) CH_3COONa
b) Na_2CO_3 d) NaOH

Q17 Boiling point of pure ethnic Acid is

- a) 391K b) 285 K
c) 373K d) 413 K

Q18 The gas evolved in the experiment shown here is

- a) H_2 b) O_2
c) Cl_2 d) CO_2



Q19 The physical state of pure acetic Acid is :-

- a) Liquid b) Gaseous Acid
c) Solid d) A

Q20 A student is asked to add a teaspoonful of solid sodium bicarbonate to a test tube containing approximately 3ml of Acetic acid. He observed that the solid sodium bicarbonate.

- a) Floats on the surface of Acetic Acid.
b) Remains suspended in the Acetic Acid.
c) Settles down in the test tube
d) Reacts with Acetic Acid and a clear solution is obtained.

Q21 Three students performed experiment by adding Na metal, Na_2CO_3 and NaHCO_3 solution in Acetic Acid in test tubes A,B,C. The gases evolved are

- a) $\text{CO}_2, \text{H}_2, \text{CO}_2$
- b) $\text{H}_2, \text{CO}, \text{H}_2$
- c) $\text{CO}_2, \text{CO}, \text{H}_2$
- d) $\text{CO}_2, \text{CO}_2, \text{H}_2$

Q22 Acetic Acid is

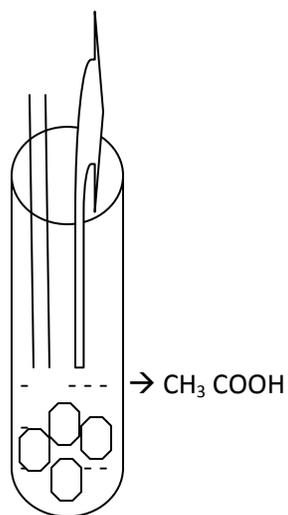
- a) Colorless, pungent smelling liquid
- b) Colorless, sweet smelling liquid
- c) Green coloured having pungent smell
- d) None of these

Q23 Acetic Acid decomposes carbonates. It indicates its

- a) Acidic nature
- b) Basic nature
- c) Neutral nature
- d) None of these

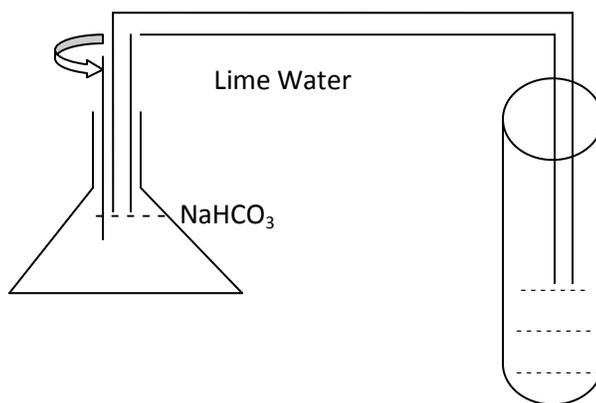
Q24 The gas formed in the given experiment is

- a) CO_2
- b) CO
- c) O_2
- d) CH_4



Q25 In the experiment shown, the gas evolved is passed through lime water, which turns milky. The 'A' is

- a) CH_3COOH
- b) Na metal
- c) NaOH
- d) Na_2CO_3



Q26 Acetic Acid reacts with sodium bicarbonate to give

- a) CO_2 gas
- b) H_2 gas
- c) CH_4 gas
- d) None

Q27 When a blue litmus paper is dipped in dilute acetic Acid, its color changes to

- a) Red
- b) Green
- c) Pink
- d) None

Q28 Vinegar is a dilute solution of

- a) Sulphur Acid
- b) Hydrochloric Acid
- c) Acetic Acid
- d) Nitric Acid

Q29 Glacial Acetic Acid is

- a) 100% Acetic Acid
- b) 10% Acetic Acid
- c) 5% Acetic Acid
- d) Acetic Acid

Q30 If we put blue litmus into acetic acid solutions

- (a) It remains blue
- (b) It changes to red
- (c) It becomes green
- (d) It gets decoloured

Q31 If we mix Acetic Acid with water

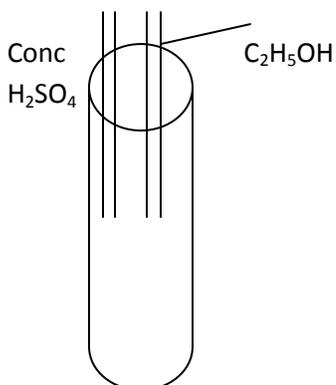
- a) Heterogeneous solution will be formed
- b) Homogeneous colour less solution will be formed
- c) Colloidal solution will be formed.
- d) Suspension will be formed

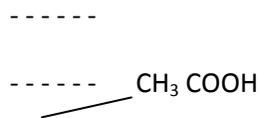
Q32 When we add sodium carbonate solution to vinegar it extinguishes candle because of

- a) Brisk effervescence due to colourless, odourless gas
- b) No reaction takes place
- c) Brisk effervescence due to gas which catches fire & burns explosively.
- d) Brisk effervescence due to pungent smelling gas

Q33 What will you observe in the experiment shown?

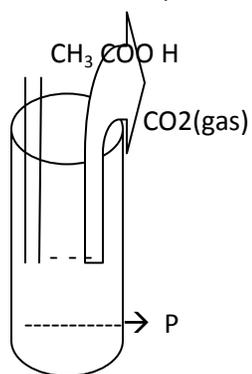
- a) Pleasant fruity smelling compound is formed.
- b) No reaction takes place
- c) Pungent smelling
- d) Vinegar – like smell is observed





Q34 When acetic Acid is added to water, the ions formed are

- (i) CH₃ COO ii) H₃O +
 A) II B) I
 B) Neither I nor II D) I and II both



Q35 P in the given experiment is

- a) NaHCO₃
 b) Na₂CO₃
 c) Either Na₂CO₃ or NaHCO₃
 d) NaOH

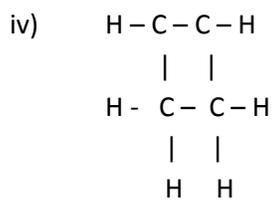
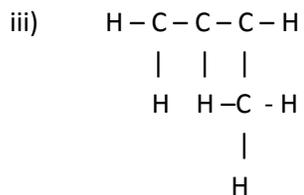
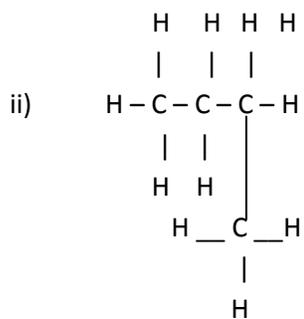
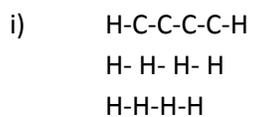
Q36 The function group present in acetic Acid is

- a) Aldehyde b) Carboxylic
 b) Ketone d) Alcohol

Q37 Acetic Acid when dissolved in water, it slightly dissociates into ions because

- a) It is strong base
 b) It is a strong acid (O2)
 c) It is a week base

Q38 Which of the following are correct structural following are correct structural isomers of butane?



a) III and (iv)

b) I and III

c) I and II

d) II and IV



In the above given reaction, alkaline KMnO_4 acts as

- a) Catalyst
 - b) Oxidizing agent
 - c) Dehydrating agent
 - d) Reducing agent
- Q40 Oils on treating with hydrogen in the presence of palladium or nickel catalyst from fats. This is an example of
- a) Addition reaction
 - b) Oxidation reaction
 - c) Substitution reaction
 - d) Displacement reaction
- Q41 In which of the following compounds – OH is the functional group?
- a) Butanal
 - b) Butanol
 - c) Butanone
 - d) Butanoic Acid
- Q42 The soap molecules has a
- a) Hydrophilic head and a hydrophobic tail
 - b) Hydrophobic head and a hydrophilic tail
 - c) Hydrophobic head & a hydrophilic tail
 - d) Hydrophobic head and a hydrophobic tail
- Q43 Which of the following is the correct representation of electron dot structure of Nitrogen?
- a) $:\text{N}::\text{N}:$
 - b) $:\text{N}:\text{N}:$
 - c) $:\text{N}:\text{N}$
 - d) $:\text{N}::\text{N}:$

- Q44 Carbon exists in the atmosphere in the form of
- a) Carbon dioxide only
 - b) Carbon monoxide only coal
 - c) Coal
 - d) Carbon monoxide in traces & carbon dioxide
- Q45 A molecule of ammonia (NH_3) has
- a) Only single bonds
 - b) Two double bond & one single bond Only double bonds
 - c) Only triple bonds
- Q46 Buckminsterfullerene is an allotropic form of
- a) Sulphur
 - b) Tin
 - c) Carbon
 - d) Phosphorus
- Q47 Which of the following gives the correct increasing order of the atomic ratio of O,F and N?
- a) O,N,F
 - b) O,F,N
 - c) N,F,O
 - d) F,O,N
- Q48 Which one of the following elements exhibit maximum number of valence electrons?
- a) Al
 - b) Si
 - c) Na
 - d) P
- Q49 An element which is an essential constituent of all organic compounds belong to
- a) Group 16
 - b) group 14
 - c) Group 1
 - d) group 15
- Q50 Where would you locate the element with electronic configuration 2,8 in the modern periodic table.

- a) Group 10
- b) Group 18

- b) Group 2
- d) Group 8