

**12TH CHEMISTRY PUBLIC QUESTION BANK**

# 12<sup>th</sup> CHEMISTRY



**Government Public questions**

**Unitwise**

**March-2020**

**Instant-2020**

**September-2020**

**August-2021**

**May-2022**

**july-2022**

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**12TH CHEMISTRY PUBLIC QUESTION BANK**

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## *12TH CHEMISTRY PUBLIC QUESTION BANK*

### **PREFACE**

#### **“Praise the lord”**

“Education is not the learning of facts,  
But the training of the mind to think”

-Albert Einstein

“Education is the movement from darkness to light “

#### **Respected Teachers/ Dear students**

This guide is based on the six government public 12<sup>TH</sup> chemistry questions. This guide contains more than 170 questions .and 90 one marks. (question and answer)

The questions asked in government public examination are very important so Students should keep reading this well.

The purpose of creating this guide is for students to get higher marks. This guide is also created for slow learning students to pass.

You have any doubt of question and answer in this material contact your chemistry teacher or me

I hope this guide will be very useful for Students and Teachers. My heartfelt **thanks** to all the **educational webpage**. Teachers or students can let me know their valuable feedback regarding this guide.

**God bless all**

**All the best**

**S.MANIKANDAN.M.Sc., B.Ed.,**  
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#### **NOTE:**

Government public question paper march 2020	- mar20
Government public question paper instant 2020	- ins20
Government public question paper September 2020	- sep20
Government public question paper August 2021	- Aug21
Government public question paper may2022	-may22
Government public question paper july2021	-jul22
Interior page number	-ipn

## 12TH CHEMISTRY PUBLIC QUESTION BANK

Time allowed : 3.00 hours

MARCH20

Maximum marks : 70

### PART-I

i) Answer all the questions.

15 X1 =15

ii) choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer

1. Match the following

- |               |   |
|---------------|---|
| (1) Fluorine  | (i) Identification of coloured metal ions |
| (2) Borax     | (ii) strong oxidizing agent               |
| (3) Aluminium | (iii) Chalcogen present in volcanic ashes |
| (4) Sulphur   | (iv) Most abundant element                |

- (a) (1)-(iii) (2)-(ii) (3)-(iv) (4)-(i)      (b) (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii)  
 (c) (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)      (d) (1)-(ii) (2)-(iv) (3)-(i) (4)-(iii)

2. wolframite ore is separated from tinstone by the process of \_\_\_\_\_

- (a) electromagnetic separation.      (b) smelting  
 (c) calcination      (d) Roasting

3. The transition element which has only +3 oxidation state is

- (a) Ni      (b) Mn      (c) Cr      (d) Sc

4. The medicinal value of drugs is measured in terms of its

- (a) Deoxyribose      (b) Gold number  
 (c) Therapeutic Intex      (d) Equilibrium constant

5. The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide respectively.

- (a) acidic,acidic,acidic      (b) acidic ,acidic ,basic  
 (c) Basic acidic basic      (d) basic,netral ,basic

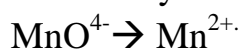
6. If one strand of the DNA has the sequence ATGCTTGA then the sequence of complementary strand would be

- (a) TACGRAGT      (b) TACGAACT      (c) TCCGAACT      (d) TACGTACT

7. Which one of the following is most basic?

- (a) 2, 4-dibromo aniline      (b) 2, 4-dichloro aniline  
 (c) 2, 4-dimethyl aniline      (d) 2, 4-dinitro aniline

8. how many faradays of electricity are required for the following reaction to occur



- (a) 7F      (b) 5F      (c) 3F      (d) 1F

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9. Assertion : p-N,N- dimethyl amino benzaldehyde undergoes benzoin condensation  
Reason : the aldehydic(CHO)group is meta directing.
- (a) Both Assertion and reason are false  
(b) Both assertion and reason are true but reason is the correct explanation of assertion  
(c) Both assertion and reason are true but reason is not the correct explanation of assertion  
(d) Assertion is true but Reason is false
10. Laptops have \_\_\_\_\_  
(a) Lead storage battery (b) Fuel cell  
(c) Mercury button cell (d) Lithium-ion battery
11. Formula for hyponitrous acid  
(a) HOONO (b)  $H_2N_2O_2$  (c)  $HNO_2$  (d)  $HNO_4$
12. Williamson synthesis of preparing dimethyl ether is a/an  
(a) Electrophilic substitution reaction (b)  $S_N1$  reaction  
(c)  $S_N2$  reaction (d) Electrophilic addition reaction
13. The vacant space in BCC lattice unit cell is  
(a) 26% (b) 48% (c) 23% (d) 32%
14. Time required for the reactant concentration to reach one half of its initial value is called  
(a) half life period (b) first order  
(c) zero order (d) second order
15. The major product obtained when phenol reacts with conc  $H_2SO_4$  at 280 K is :  
(a) Salicylic acid (b) Picric acid  
(c) O-phenol sulphonic acid (d) p-phenol sulphonic acid

### PART-II

**Note : Answer any six questions. Question no .24 is compulsory . 6 X 2 = 12**

16. How is bleaching powder prepared ?
17. Classify the following elements into d-block and f-block elements  
i) Tungsten ii) Ruthenium iii) Promethium iv) Einsteinium
18. Write any two hydrate isomers of the complex with the molecular formula  $CrCl_3.6H_2O$
19. If the no. of close packed sphere is 6, calculate the number of octahedral voids and tetrahedral voids generated.
20. What are Lewis acids and bases? Give an example for each
21. Write the dispersed phase and dispersion medium of butter
22. Name the catalyst used in Rosenmund reduction and state its importance
23. How is chloropicrin prepared ?
24. Why is C-O -C bond angle in ether slightly greater than the tetrahedral bond angle?

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### PART-III

**Note : Answer any six questions. Question no .33 is compulsory .**

**6 X 3 = 18**

25. Write the chromyl chloride test.
26.  $[\text{Sc}(\text{H}_2\text{O})_6]^{3+}$  is colourless -Explain
27. Derive Henderson equation.
28. How are metals protected from corrosion by cathodic protection method?
29. Mention the shape of the following colloidal particles
  - a)  $\text{As}_2\text{S}_3$
  - b) blue gold sol
  - c) tungstic acid sol
30. formic acid reduces tollen's reagent whereas acetic acid does not reduce give reason
31. How are proteins classified based on their structure ? explain
32. State any three advantages of food additives
33. There is only a marginal differences in decrease in ionisation enthalpy from aluminium to thallium – explain why ?

### PART-IV

**Note : answer all the questions**

**5 X 5 = 25**

34. a) Explain zone refining process
 

(OR)

  - b) i) Write any two conditions for catenation ?
  - ii) why HF can't be stored in glass bottles ?
35. a) i) write the molecular formula and draw the structure of sulphurous acid Marshall's acid
- ii) Write the IUPAC name of the following
  - I)  $[\text{Ag}(\text{NH}_3)_2]^+$
  - ii)  $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$

(OR)

  - b) i) Calculate the magnetic moment and magnetic property of  $[\text{CoF}_6]^{3-}$
  - ii) Write a note on frenkel defect
36. a) Derive integrated rate law for a first order reaction  $\text{A} \rightarrow \text{product}$ 

(OR)

  - b) i) Write the pH value of following substances
    - a) Vinegar
    - b) black coffee.
    - C) packing soda
    - d) soapy water
  - ii) A conductivity cell has two platinum electrodes separated by a distance of 1.5 cm and the cross sectional area of each electrode is 4.5 sq cm using this cell the resistance of 0.5 N electrolytic solution was measured as 15 ohms find the specific conductance of the solution

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37. a) i) Give any three difference between chemisorption and physisorption  
 ii) What is vulcanization

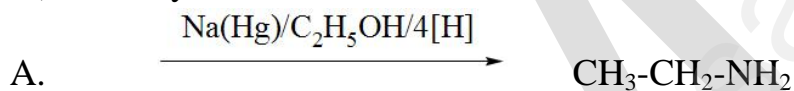
(OR)

- b) i) Give the coupling reaction of phenol  
 ii) how will you prepare the following by using grignard reagent ?  
 a) Propan-1-ol      b) propan-2-ol

38. a) i) What is formalin ? what is its use ?  
 ii) What is glycosidic linkage ?

(OR)

- b) i) what is gomberg reaction explain  
 ii) .Identify A and B



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## 12TH CHEMISTRY PUBLIC QUESTION BANK

**Time allowed : 3.00 hours**

**INSTANT20**

**Maximum marks : 70**

**PART-I**

**15 X1 =15**

**i) Answer all the questions.**

**ii) choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer**

1. the incorrect statement among the following is
  - (a) Nickel is refined by mond's process
  - (b) Titanium is refined by van-Arkel's process
  - (c) Zinc blende (ZnS) is connected by froth floatation process
  - (d) In the metallurgy of gold the metal is leached with dilute sodium chloride solution
2. The metal which is used packing material for food items
  - (a) Zn
  - (b) Zr
  - (c) Al
  - (d) Au
- 3..Sodium salt of tetraboric acid is known as
  - (a) B<sub>2</sub>H<sub>6</sub>
  - (b) Na<sub>2</sub>BO<sub>3</sub>
  - (c) H<sub>3</sub>BO<sub>3</sub>
  - (d) Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>.10H<sub>2</sub>O
4. \_\_\_\_\_ is used for producing smoke screen as it gives large smoke
  - (a) Borax
  - (b) Diborane
  - (c) Potash alum
  - (d) Phosphine
5. The actual position of lanthanoids in the periodic table is at
  - (a) group number 3 period number 4
  - (b) group number 6 period number 3
  - (c) group number 4 period number 4
  - (d) group number 3 period number 6
6. Fac-mer isomerism is shown by :
  - (a) [Co(en)<sub>3</sub>]<sup>3+</sup>
  - (b) [Co(NH<sub>3</sub>)<sub>4</sub>Cl<sub>2</sub>]<sup>+</sup>
  - (c) [Co(NH<sub>3</sub>)<sub>3</sub>Cl<sub>3</sub>]
  - (d) [Co(NH<sub>3</sub>)<sub>5</sub>Cl] SO<sub>4</sub>
7. Packing efficiency of body centred cubic (BCC)
  - (a) 52.31%
  - (b) 68%
  - (c) 86%
  - (d) 52.13%
8. The rate constant of a reaction is  $5.8 \times 10^{-2} \text{ s}^{-2}$ . the order of reaction is
  - (a) First order
  - (b) Zero order
  - (c) second order
  - (d) Third order
9. Conjugated base for bronsted acids H<sub>2</sub>O and HF are :
  - (a) OH<sup>-</sup> and H<sub>2</sub>FH<sup>-</sup> respectively
  - (b) H<sub>3</sub>O<sup>+</sup> and F<sup>-</sup> respectively
  - (c) OH<sup>-</sup> and F<sup>-</sup> respective
  - (d) H<sub>3</sub>O<sup>-</sup> and H<sub>2</sub>F<sup>+</sup> respectively
10. when  $\Delta S < 0$  and T $\Delta S$  is negative :
  - (a) adsorption is exothermic
  - (b) absorption is exothermic
  - (c) adsorption is endothermic
  - (d) absorption is endothermic

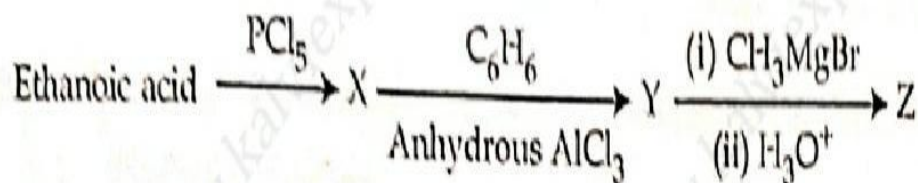


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11. in the preparation of ether by Williamson synthesis using primary alkyl halide involves :

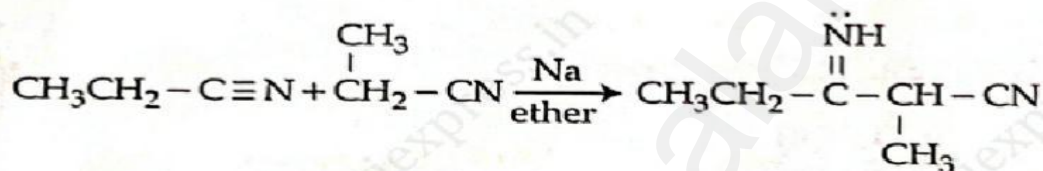
- (a)  $E_1$  mechanism (b)  $S_N2$  mechanism  
(c)  $SN^1$  mechanism (d)  $E_2$  mechanism

12. Predict the product Z in the following series of reactions



- (a)  $(\text{CH}_3)_2\text{C}(\text{OH})\text{C}_6\text{H}_5$  (b)  $\text{CH}_3\text{CH}(\text{OH})\text{C}_6\text{H}_5$   
(c)  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$  (d)  $\text{C}_6\text{H}_5\text{-CH}_2\text{-OH}$

13.



The above reaction is :

- (a) Thorpe nitrile condensation (b) Levine and Hauser acetylation  
(c) Lederer-manasse reaction (d) Aldol condensation

14. Cheilosis is a vitamin deficiency disease caused by

- (a) Vitamin B<sub>6</sub> (b) Vitamin B<sub>9</sub>  
(c) Vitamin B<sub>7</sub> (d) Vitamin B<sub>2</sub>

15. Match the following

- (1) Major tranquilizers (i) Non steroidal anti-inflammatory drug  
(2) Analgesics (ii) propofol  
(3) NSAIDs (iii) clozapine  
(4) Intravenous general anaesthetics (iv) Aspirin

- (a) (1)-(iii) (2)-(iv) (3)-(i) (4)-(ii) (b) (1)-(i) (2)-(ii) (3)-(iii) (4)-(iv)  
(c) (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii) (d) (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)

### PART-II

**Note : Answer any six questions. Question no .24 is compulsory .**

**6 X 2 = 12**

16. Explain the following terms with suitable example

I) Gangue II) slag

17. Give the uses of helium

18. What are interstitial compounds

19. Distinguish between isotropy and anisotropy in solids

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20. The rate of the reaction.  $x + 2y \rightarrow \text{product}$  is  $4 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$  if  $[x] = [y] = 0.2 \text{ M}$  and rate constant at  $400 \text{ K}$  is  $2 \times 10^{-2} \text{ s}^{-1}$  what is the overall order of the reaction ?
21. Calculate the pH of  $0.1 \text{ M CH}_3\text{COONa}$  solution ( $p_{\text{Ka}}$  for  $\text{CH}_3\text{COOH}$  is 4.74)
22. Convert glycerol to acrolein
23. Write a note on denaturation of proteins
24. How is aryl halide prepared by using  $\text{Cu}_2\text{Cl}_2/\text{HCl}$  (or)  $\text{Cu}_2\text{Br}_2/\text{HBr}$  ?

### PART-III

**Note : Answer any six questions. Question no .33 is compulsory . 6 X 3 = 18**

25. what are the factors responsible for the anomalous behaviour of first element of the p-block ?
26. which metal in the 3d series exhibits + 1 oxidation State most frequently and why ?
27. mention the metal complexes and its metal ions are used in biological system
28. Define ionic product of water .Give its value at room temperature
29. What is inversion of phase ? give an example
30. Explain Benedict's solution test
31. Write any three biological importance of lipids ?
32. How is neoprene prepared ?
33. A solution of silver nitrate is electrolysed for 30 minutes with a current of 2 Ampere calculate the mass of silver deposited at the cathode.

### PART-IV

**Note : answer all the questions**

**5 X 5 = 25**

34. a) i) What are the difference between minerals and ores ?  
 ii) Write the balanced equation for the overall reaction of chlorine with cold NaOH and hot NaOH  
 (OR)
- b) i) What is catenation ?  
 ii) Write a short note on Holmes signal
35. a) write the postulates of werner's theory  
 (OR)
- b) i) .Explain Schottky defect  
 ii) Identify the auto catalyst in the following reaction  
 (A)  $\text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O} \rightarrow \text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH}$   
 (B)  $\text{AsH}_3 \rightarrow 2\text{As} + 3\text{H}_2$

**12TH CHEMISTRY PUBLIC QUESTION BANK**

36. a) i) Explain the effect of catalyst on reaction rate with an example

ii) Classify the following into Lewis acid and Lewis bases

(A)  $\text{BF}_3$  (B)  $\text{CO}_2$  (C)  $\text{MgO}$  (D)  $\text{CH}_3$

(OR)

b) Derive an expression for Nernst equation

37. a) i) .Name the factors affecting adsorption

ii) Explain auto oxidation of ethers

(OR)

b) i) What is Baeyer's reagent ? how it is useful to convert ethene to ethane 1 2 diol ?

ii) Howto antiseptics differ from disinfectants ?

38. a) Write the mechanism of aldol condensation reaction

(OR)

b) i) Name the reducing agent used in the reduction of nitrobenzene to the following compounds

A)Aniline

B) phenyl hydroxylamine

C) Nitroso benzene

ii) Write mustard oil reaction ?

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## 12TH CHEMISTRY PUBLIC QUESTION BANK

Time allowed : 3.00 hours

**SEPTEMBER20**

Maximum marks : 70

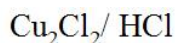
**PART-I****15 X1 =15**

i) Answer all the questions.

ii) choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer

1. Glucose and mannose are epimers at

- |               |               |
|---------------|---------------|
| (a) C3 carbon | (b) C4 carbon |
| (c) C1 carbon | (d) C2 carbon |

2.  $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \longrightarrow \text{C}_6\text{H}_5\text{Cl} + \text{N}_2$  this reaction is known as

- |                               |                       |
|-------------------------------|-----------------------|
| (a) Gattermann reaction       | (b) Gomberg reaction  |
| (c) Schotten-Baumann reaction | (d) Sandmeyerreaction |

3. In  $\text{H}_2\text{-O}_2$  fuel cell the reaction occurs at cathode is

- |  |   |
|--|---|
| (a) $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$                 | (b) $\text{H}^+ + \text{e}^- \rightarrow 1/2 \text{H}_2$                                      |
| (c) $\text{O}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l}) + 4\text{e}^- \rightarrow 4\text{OH}^-(\text{aq})$ | (d) $\text{H}^+(\text{aq}) + \text{OH}^-(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l})$ |

4. \_\_\_\_\_ is used in the manufacture of thermosoftening plastic perspex

- |                  |                  |
|------------------|------------------|
| (a) Benzaldehyde | (b) Acetone      |
| (c) Acetaldehyde | (d) Benzophenone |

5. The pH of an aqueous solution is zero. The solution is

- |                     |                     |
|---------------------|---------------------|
| (a) neutral         | (b) basic           |
| (c) slightly acidic | (d) strongly acidic |

6. Inorganic benzene is

- |                            |                                      |                             |                                      |
|----------------------------|--------------------------------------|-----------------------------|--------------------------------------|
| (a) $\text{B}_2\text{H}_6$ | (b) $\text{B}_3\text{N}_3\text{H}_6$ | (c) $\text{H}_3\text{BO}_3$ | (d) $\text{H}_2\text{B}_4\text{O}_7$ |
|----------------------------|--------------------------------------|-----------------------------|--------------------------------------|

7. Extraction of gold involves leaching with cyanide ion Gold is later recovered by :

- |                                   |                   |
|-----------------------------------|-------------------|
| (a) metal displacement with zinc. | (b) Liquation     |
| (c) Distillation                  | (d) Zone refining |

8. cold dilute alkaline  $\text{KMnO}_4$  is known as.

- |                      |                       |
|----------------------|-----------------------|
| (a) Schiff's reagent | (b) Fenton's reagent  |
| (c) Bayer's reagent  | (d) Nessler's reagent |

9. Amide- linked local anaesthetic is

- |                |                |
|----------------|----------------|
| (a) Ranitidine | (b) Omeprazole |
| (c) Procaine   | (d) Lidocaine  |

10. the formula used to identify density of unit cell

- |                                |                           |
|--------------------------------|---------------------------|
| (a) $\rho = a^3 N_A \times nM$ | (b) $a^3 N_A - nM$        |
| (c) $\rho = nM/a^3 N_A$        | (d) $\rho = a^3 N_A / nM$ |

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11. The oxidation state of chlorine in  $\text{Cl}_2\text{O}_7$  is  
 (a) +6 (b) +7 (c) +4 (d) +5
12. The common name of 1,2,3 trihydroxy benzene is :  
 (a) pyrogallol (b) Resorcinol  
 (c) Hydroxyquinol (d) phloroglucinol
13. match the following
- |                                      |                         |
|--------------------------------------|-------------------------|
| 1) $[\text{Ni}(\text{CO})_4]$        | i) trigonal bipyramidal |
| 2) $[\text{Pt}(\text{NH}_3)_4]^{2+}$ | ii) octahedral          |
| 3) $[\text{Fe}(\text{CO})_5]$        | iii) tetrahedral        |
| 4) $[\text{Co}(\text{NH}_3)_6]^{3+}$ | iv) square planar       |
- (a) (1)-(ii) (2)-(iii) (3)-(iv) (4)-(i) (b) (1)-(iii) (2)-(i) (3)-(iv) (4)-(ii)  
 (c) (1)-(iii) (2)-(iv) (3)-(i) (4)-(ii) (d) (1)-(iv) (2)-(i) (3)-(ii) (4)-(iii)
14. The magnetic moment of 1.73 BM will be shown by one among the following  
 (a)  $[\text{Cu}(\text{NH}_3)_4]^{2+}$  (b)  $[\text{Ni}(\text{CN})_4]^{2-}$   
 (c)  $\text{TiCl}_4$  (d)  $[\text{COCl}_6]^{4-}$
15. The mechanism proposed for the enzyme catalysis reaction is  
 (a)  $\text{P} + \text{E} \longrightarrow \text{E} + \text{S} \rightleftharpoons \text{ES} \longrightarrow \text{P} + \text{E}$   
 (b)  $\text{E} + \text{S} \rightleftharpoons \text{ES} \longrightarrow \text{P} + \text{E}$   
 (c)  $\text{ES} \rightleftharpoons \text{P} + \text{E} \longrightarrow \text{E} + \text{S}$   
 (d)  $\text{E} + \text{S} \longrightarrow \text{ES} \rightleftharpoons \text{P} + \text{E}$

### PART-II

**Note : Answer any six questions. Question no .24 is compulsory . 6 X 2 = 12**

16. What is the role of limestone in the extraction of iron from its oxide  $\text{Fe}_2\text{O}_3$  ?
17. Give the difference between double salt and coordination compound ?
18. Define buffer action
19. Define common ion effect
20. Write a note on tyndall effect
21. What is urotropine ? how it is prepared ?
22. Aniline does not undergo Friedel Crafts reaction give reason
23. Name the vitamins whose deficiency causes  
 (a) rickets (b) Scurvy
24. A hydride of second period alkali metal (A) on reaction with compound of boron B in the presence of ether to give a reducing agent C . Identify A B and c

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### PART-III

**Note : Answer any six questions. Question no .33 is compulsory .** **6 X 3 = 18**

25. which types of ores can be concentrated by froth flotation method give two examples
26. What type of hybridization is found in the following  
 I) BrF.    ii) BrF<sub>5</sub>.    iii) BrF<sub>3</sub>.
27. In an octahedral crystal field, draw the figure to show splitting of d-orbitals
28. differentiate between crystalline solid and amorphous solid
29. Derive an expression for Ostwald's dilution law
30. Mention the mechanism in the following reactions  
 I) One mole of HI reacts with methoxy ethane  
 ii) One mole of HI reacts with 2 methoxy 2 -methylpropane
31. Write the test for carboxylic acid group
32. write short note on Gabriel phthalimide synthesis
33. Powdered CaCO<sub>3</sub> reacts much faster with dilute HCl than with the same mass of CaCO<sub>3</sub> as marble . give Reason ?

### PART-IV

**Note : answer all the questions** **5 X 5 = 25**

34. a) i) How is potash alum prepared ?  
 ii) Indicate the possible type of isomerism for the following complexes  
 (A) [Co(en)<sub>3</sub>]<sup>3+</sup>                      (B) [Pt(NH<sub>3</sub>)<sub>2</sub>Cl<sub>2</sub>]<sup>2+</sup>.  
 (OR)
- b) i) explain the Deacons's process for manufacture of chlorine.  
 ii) Sulphuric acid is a dibasic acid prove it
35. a) What is lanthanide or lanthanoid contraction explain its consequences  
 (OR)
- b) i) If the Radius ratio of the compound is between 0.155 to 0.225 find out the coordination number and structure of the compound.  
 ii) Arrange the following in the increasing order of relative reactivity of acid derivatives and mention the reason alone  
 CH<sub>3</sub>COOC<sub>2</sub>H<sub>5</sub>    CH<sub>3</sub>COCl    CH<sub>3</sub>CONH<sub>2</sub>    CH<sub>3</sub>COOCOCH<sub>3</sub>
36. a) i) the rate constant for a first order reaction is  $1.54 \times 10^{-3} \text{ s}^{-1}$  . calculate its half life time

## 12TH CHEMISTRY PUBLIC QUESTION BANK

ii) Identify the conjugate acid base pair for the following reaction in aqueous solution



(OR)

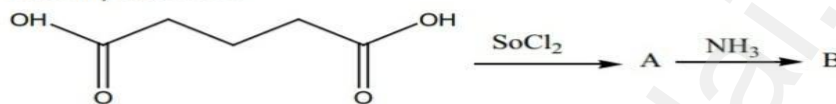
b) State Kohlrausch law and explain any one of the applications

37. a) Write any five characteristics of catalysts

(OR)

b) How to distinguish 1<sup>o</sup>, 2<sup>o</sup>, and 3<sup>o</sup> alcohols by Victor Meyer test

i. Identify A, B and C



38. a) i)

ii) How are RNA molecules classified? Explain

(OR)

b) i) Give a brief account on antioxidants

ii) How do you classify the following into various classes of drugs

a) Milk of magnesia      b) Aspirin

c) Penicillin              d) Procaine

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## 12TH CHEMISTRY PUBLIC QUESTION BANK

**Time allowed : 3.00 hours**

**AUGUST21**

**Maximum marks : 70**

**PART-I**

**15 X1 =15**

**i) Answer all the questions.**

**ii) choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer**

1. The crystal with a metal deficiency defect is.

- (a) ZnO                      (b) NaCl                      (c) KCl                      (d) FeO

2. The pyrimidine bases present in DNA are

- (a) cytosine and Thiamine                      (b) cytosine and Adenine  
(c) cytosine and Uracil                      (d) cytosine and Guanine

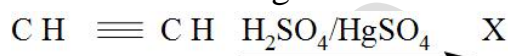
3. The pH of an aqueous solution is zero. The solution is

- (a) Neutral                      (b) Slightly acidic  
(c) Basic                      (d) strongly acidic

4. On reacting with neutral ferric chloride, Phenol gives

- (a) Dark green colour                      (b) Red colour  
(c) No colouration                      (d) violet colour

5. In the following reaction



Product 'X' will not give

- (a) Iodoform test                      (b) Tollen's test  
(c) Fehling solution test                      (d) Victor Meyer test.



- (a) Poly propylene                      (b) Butan-1-al  
(c) Acetic acid                      (d) Acetate

7. The number of electrons that have a total charge of 9650 coulombs is

- (a)  $6.022 \times 10^{22}$                       (b)  $6.22 \times 10^{23}$   
(c)  $6.022 \times 10^{-34}$                       (d)  $6.022 \times 10^{24}$

8. Match the following.

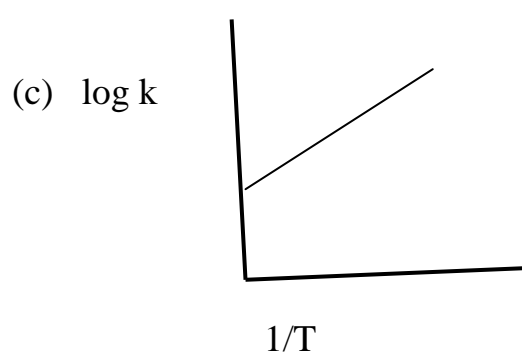
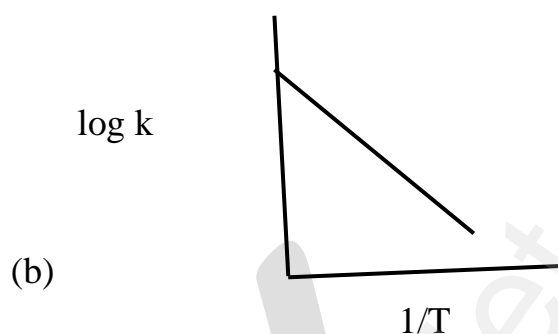
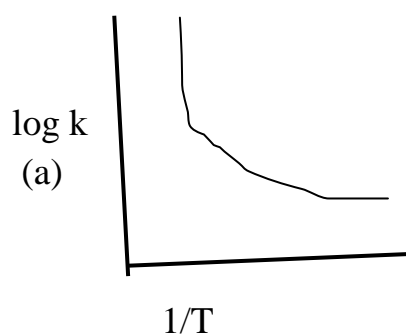
- |             |                  |
|-------------|------------------|
| 1. Emulsion | i) whipped cream |
| 2. gel      | ii) ink          |
| 3. foam     | iii) cream       |
| 4. sol      | iv) butter       |

- (a) (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)                      (b) (1)-(iii) (2)-(i) (3)-(ii) (4)-(iv)  
(c) (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii)                      (d) (1)-(iii) (2)-(iv) (3)-(i) (4)-(ii)



## 12TH CHEMISTRY PUBLIC QUESTION BANK

9. among the following graphs showing variation of rate constant with temperature (T) for a reaction, the one that exhibits Arrhenius behavior over the entire temperature range is



(d) both (b) and (c)

10. which one of the following compounds is not formed?

- (a) XeF<sub>2</sub>                      (b) XeOF<sub>4</sub>                      (c) NeF<sub>2</sub>                      (d) XeO<sub>3</sub>

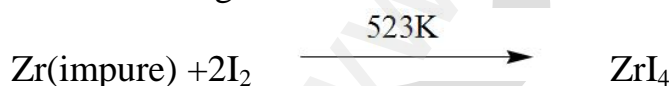
11. The phenomenon observed when a beam of light is passed through a colloidal solution is

- (a) Coagulation                      (b) Cataphoresis  
(c) Tyndall effect.                      (d) Electrophoresis

12. In K<sub>4</sub> [Fe(CN)<sub>6</sub>] the co-ordination number of Fe<sup>2+</sup> is \_\_\_\_\_

- (a) 4                      (b) 2                      (c) 3                      (d) 6

13. The following set of reactions are used in refining zirconium. This method is called as \_\_\_\_\_



- (a) Zone refining                      (b) Liquefaction  
(c) Mond's process                      (d) van Arkel process

14. which of the following is not sp<sup>2</sup> hybridised?

- (a) Fullerene                      (b) Graphite  
(c) Diamond                      (d) Graphene

## 12TH CHEMISTRY PUBLIC QUESTION BANK

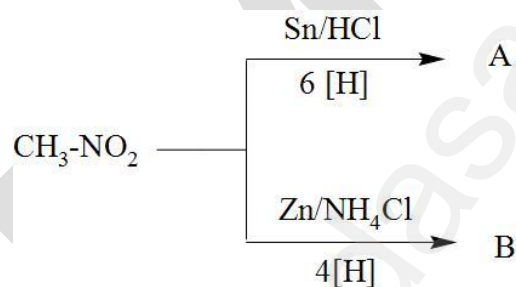
15. IUPAC name for the amine  $\text{H}_2\text{N}-\text{CH}_2-(\text{CH}_2)_4-\text{CH}_2-\text{NH}_2$

- (a) Heptane-1,7-diamine                      (b) Hexamethylene diamine  
(c) Hexane-1,6-amine                        (d) Hexane-1,6-diamine

### PART-II

**Note : Answer any six questions. Question no .24 is compulsory .                      6 X 2 = 12**

16. give the uses of borax .  
17. why d block elements exhibit variable oxidation state?  
18. Define unit cell  
19. State ostwald's dilution law  
20. Define equivalent conductance  
21. Mention any two factors that affect electrolytic conductance  
22. What is mean by electro osmosis?  
23. Write a short note on peptide bond  
24. From the following reaction identify A and B



### PART-III

**Note : Answer any six questions. Question no .33 is compulsory .                      6 X 3 = 18**

25. What is meant by term coordination number? What is the coordination number of atoms in a BCC structure?  
26. What are interhalogen compounds ? give two examples  
27. Give the difference between double salt and coordination compound  
28. Mention the factors responsible for the anomalous behaviour of the first element of p-block  
29. State faraday's law of electrolysis ?  
30. How are the following conversion effected?  
i) ethylene glycol  $\rightarrow$  acetaldehyde  
ii) glycerol  $\rightarrow$  acrolein  
31. Give the test for carboxylic acid group  
32. Give any three differences between DNA and RNA  
33. Classify the following into Covalent molecular ionic and metallic solids  
i) Diamond                      ii) brass                      iii) NaCl  
iv) Naphthalene                      v) glucose                      vi)  $\text{SiO}_2$

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### PART-IV

**Note : answer all the questions**

**5 X 5 = 25**

34. a) Explain froth flotation process

(OR)

b) i) explain the bleaching action of Sulphur dioxide

ii) Write any two uses of helium

35. a) i) What are interstitial compounds ?

ii) Calculate the number of unpaired electrons in  $Ti^{3+}$ ,  $Mn^{2+}$  and calculate the spin only magnetic moment ?

(OR)

b) i) what are the limitations of VB theory ?

ii) based on the VB theory, explain why  $[Ni(CN)_4]^{2-}$  it is diamagnetic

36. a) i) write two difference between rate and rate constant of a reaction

ii) derive integrated rate law for a zero order reaction  $A \rightarrow \text{product}$

(OR)

b) find the pH of buffer solution containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid.  $K_a$  for acetic acid is  $1.8 \times 10^{-5}$ .

37. a) how will you convert benzaldehyde into the following compounds?

i) benzoin      ii) cinnamic acid      iii) malachite green

(OR)

b) i) differentiate primary secondary and tertiary alcohols using Lucas test

ii) give the uses of diethyl ether

38. a) describe adsorption theory of catalysis.

(OR)

b) A compound 'A' of molecular formula  $C_2H_3N$  on reduction with  $Na(Hg)/C_2H_5OH$  gives 'B' of molecular formula  $C_2H_7N$  which undergoes carbylamine test. Compound 'B' on reduction with nitrous acid gives compound 'C' of molecular formula  $C_2H_6O$  by liberating nitrogen. Identify A, B and C and write the reaction involved.

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## 12TH CHEMISTRY PUBLIC QUESTION BANK

**Time allowed : 3.00 hours**

**MAY22**

**Maximum marks : 70**

**PART-I**

**Note : i) answer all the questions**

**15 X 1 = 15**

**ii) choose the most appropriate answer from the given four alternatives and write the option code the corresponding answer .**

1. An element belongs to group-15 and 3rd period of the periodic table .its electronic configuration would be
 

a) $1S^2 2S^2 2P^6 3S^2 3P^2$	b) $1S^2 2S^2 2P^4$
c) $1S^2 2S^2 2P^6 3S^2 3P^3$	d) $1S^2 2S^2 2P^3$
2. Bauxite has the composition :
 

a) $Al_2O_3.nH_2O$	b) $Fe_2O_3.2H_2O$	c) $Al_2O_3$	d) none of the above
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3. If 75% of a first order reaction was completed in 60 min , 50% of the same reaction under the same conditions would be completed in :
 

a) 35 minutes	b) 20 minutes	c) 75 minutes	d) 30 minutes
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4. Which of the following reagent can be used to convert nitrobenzene to aniline
 

a) Zn/Hg/NaOH	b) Zn/ $NH_4Cl$	c) Sn/HCl	d) All of these
---------------	-----------------	-----------	-----------------
5. HO-CH<sub>2</sub>-CH<sub>2</sub>-OH on heating with periodic acid gives
 

a) methanal	b) methanoic acid	c) CO <sub>2</sub>	d) Glyoxal
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6. A complex in which the oxidation number of the metal is zero is
 

a) $K_4[Fe(CN)_6]$	b) $[Fe(CN)_3(NH_3)_3]$	c) $[Fe(CO)_5]$	d) both b and c
--------------------	-------------------------	-----------------	-----------------
7. Which of the following can act as lowery-bronsted acid as well as base ?
 

a) $HPO_4^{2-}$	b) HCl	c) Br-	d) $SO_4^{2-}$
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8. An aqueous solution of borax is
 

a) basic	b) neutral	c) amphoteric	d) acidic
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9. Which one of the following is an example for homogeneous catalysis ?
  - a) Hydrogenation of oil
  - b) manufacture of ammonia by haber's process
  - c) Hydrolysis of sucrose in presence of dil.HCl
  - d) Manufacture of sulphuric acid by contact process
10. The formation of cyanohydrins from acetone is an example of
 

a) electrophilic addition	b) nucleophilic substitution
c) nucleophilic addition	d) electrophilic substitution
11. Which of the following oxidation states in most common among the lanthanoids?
 

a) +5	b) +4	c) +3	d) +2
-------	-------	-------	-------
12. Faraday constant is defined as
 

a) Charge required to deposit one mole of substance	b) charge carried by 1 electrton
c) Charge carried by $6.22 \times 10^{10}$ electrons	d) Charge carried by one mole of electrons

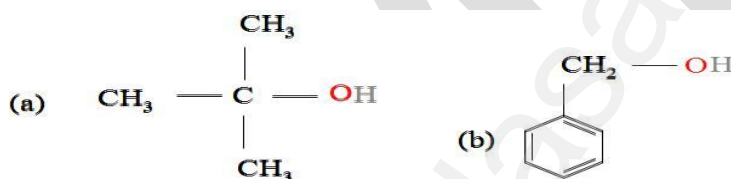
## 12TH CHEMISTRY PUBLIC QUESTION BANK

13. Which of the following amino acids are achiral ?  
 a) Proline                      b) Alanine                      c) Glycine                      d) Leucine
14. The crystal with a metal deficiency defect is  
 a) ZnO                      b) NaCl                      c) KCl                      d) FeO
15. Fog is colloidal solution of  
 a) liquid in gas      b) solid in gas                      c) gas in liquid                      d) gas in gas

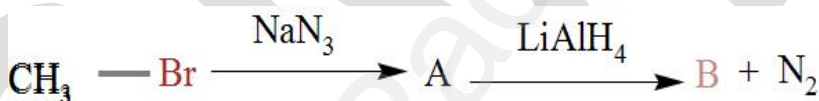
### PART-II

**Note : answer any six questions. Question No.24 is compulsory                      6 X 2 = 12**

16. What are the difference between minerals and ores ?
17. Which is more stable  $Fe^{2+}$  or  $Fe^{3+}$  ? why ?
18. Define Coordination number
19. Define covalent solids
20. Give examples for the first order reactions.
21. What are the limitations of Arrhenius concept ?
22. Write a note on Electrophoresis.
23. Give the IUPAC names



24. Identify A and B in the following sequence of reactions



### PART-III

**Note : answer any six questions. Question No.33 is compulsory                      6 X 3 = 18**

25. What are interhalogens compounds ? Give examples
26. What are the properties of interstitial compounds ?
27. Write Arrhenius equation and explain the terms involved
28. What are the factors that affects electrolytic conductance ?
29. What is homogeneous catalysis ? Give example
30. Write any one method of preparation of diethyl ether
31. Write haloform reaction
32. What are epimers ? give example
33. Write the following for the complex  $[\text{Ag}(\text{NH}_3)_2]^+$   
 a) ligand b) central metal ion c) IUPAC name

**12TH CHEMISTRY PUBLIC QUESTION BANK****PART-IV****Note : Answer All The Questions****5 X 5 = 25**

34. a) i) Write a note on gravity separation method ?
- ii) Explain the mond's process of refining nickel.  
(OR)
- b) i) What is inert pair effect ?  
ii) What are the uses of boric acid ?
35. a) i) What are the uses of oxygen ?  
ii) How will you prepare bleaching powder ?  
(OR)
- b) Write the postulates of werner's theory .
36. a) Differentiate crystalline solids and amorphous solid  
(OR)
- b) i) Define PH  
ii) Explain common ion effect with example
37. a) Derive an expression for Nernst equation.  
(OR)
- b) What are the characteristics of catalyst ?
38. a) Explain the reducing action of formic acid with example  
(OR)
- b) Write a note on :  
i) Carbylamine reaction  
ii) Gabriel phthalimide synthesis

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**12TH CHEMISTRY PUBLIC QUESTION BANK****PART-IV****Note : Answer All The Questions****5 X 5 = 25**

34. a) Explain the principle of electrolytic refining with an example

(OR)

b) What is catenation ? Write the conditions for catenation property ?

35. a) Write the properties of inter halogen compounds

(OR)

b) Compare lanthanide and actinides

36. a) i) What is packing efficiency ?

ii) Write a note on frenkel defect ?

(OR)

b) Derive integrated rate law for a zero order reaction  $A \rightarrow \text{product}$

37. a) Derive an expression for Nernst equation

(OR)

b) Describe adsorption theory of catalysis

38. a) i) Write three tests for the identification of carboxylic acid group

ii) Write note on benzoin condensation.

(OR)

b) Write a note on

i) Bromination of aniline

ii) Mustard oil reaction.

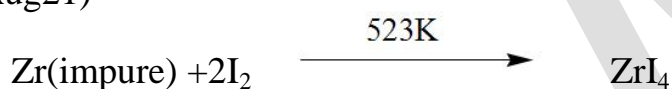
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## 12TH CHEMISTRY PUBLIC QUESTION BANK

## 1. METALLURGY

**ONE MARKS :-**

- wolframite ore is separated from tinstone by the process of \_\_\_\_\_ (mar20)
  - electromagnetic separation.**
  - smelting
  - calcination
  - Roasting
- the incorrect statement among the following is (ins20)
  - Nickel is refined by mond's process
  - Titanium is refined by van-Arkel's process
  - Zinc blende (ZnS) is connected by froth floatation process
  - In the metallurgy of gold the metal is leached with dilute sodium chloride solution**
- The metal which is used packing material for food items
  - Zn
  - Zr
  - Al**
  - Au
- Extraction of gold involves leaching with cyanide ion Gold is later recovered by : (sep20)
  - metal displacement with zinc.**
  - Liquation
  - Distillation
  - Zone refining
- The following set of reactions are used in refining zirconium. This method is called as \_\_\_\_ (Aug21)



- Zone refining
  - Liquation
  - Mond's process
  - van Arkel process**
- Bauxite has the composition : (May22)
    - $\text{Al}_2\text{O}_3 \cdot n\text{H}_2\text{O}$**
    - $\text{Fe}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$
    - $\text{Al}_2\text{O}_3$
    - none of the above
  - Zinc is obtained from ZnO by (jul22)
    - carbon reduction**
    - reduction using silver
    - Electrochemical process
    - Acid leaching

**2 & 3 & 5 MARK QUESTIONS :-**

- Explain froth floatation process ( in.p.no.4) (aug21)
- What are the difference between minerals and ores( inst20)(may22)(b/b: 1)
- Describe mond process for refining nickel. (may 22)( b/b - 5 )
- Explain zone refining process with an example(mar 20) ( b/b - 6 )
- Write a note on gravity separation method ? (may 22) (in.p.no :
- Explain Acid leaching with an example (jul 22)
- Explain the principle of electrolytic refining with an example (jul 22)
- What is the role of limestone in the extraction of iron from its oxide  $\text{Fe}_2\text{O}_3$  (sep 20) (b/b : 3)
- which type of ores can be concentrated by froth floatation method give two example (sep 20) (b/b : 4)
- Explain the following terms with suitable example ( inst 20) (b/b : 10)
  - Gangue.
  - slag

## 12TH CHEMISTRY PUBLIC QUESTION BANK

## 2.P-BLOCK ELEMENTS-I

**ONE MARKS :-**

1. Match the following (mar20)

- |               |   |
|---------------|---|
| (1) Fluorine  | (i) Identification of coloured metal ions |
| (2) Borax     | (ii) strong oxidizing agent               |
| (3) Aluminium | (iii) Chalcogen present in volcanic ashes |
| (4) Sulphur   | (iv) Most abundant element                |

(a) (1)-(iii) (2)-(ii) (3)-(iv) (4)-(i)      (b) (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii)

(c) (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)      (d) (1)-(ii) (2)-(iv) (3)-(i) (4)-(iii)

2. Sodium salt of tetraboric acid is known as (ins20)

- (a)
- $B_2H_6$
- (b)
- $Na_2BO_3$
- (c)
- $H_3BO_3$
- (d)
- $Na_2B_4O_7 \cdot 10H_2O$

3. Inorganic benzene is (sep20)

- (a)
- $B_2H_6$
- (b)
- $B_3N_3H_6$
- (c)
- $H_3BO_3$
- (d)
- $H_2B_4O_7$

4. which of the following is not  $sp^2$  hybridised? (Aug21)

- (a) Fullerene      (b) Graphite
- 
- (c)
- Diamond**
- (d) Graphene

5. An aqueous solution of borax is (May22)

- a)
- basic**
- b) neutral      c) amphoteric      d) acidic

6. The element that shows lowest catenation among the following p-block elements is (jul22)

- a) carbon      b) silicon      c)
- lead**
- d) germanium

**2 & 3 & 5 MARK QUESTIONS :-**

1. What is catenation ?

describe briefly the catenation property of carbon (mar20) (b/b -4)

Write the conditions for catenation property ? (jul 22)

2. Give the uses of borax. (b/b-3) (aug21)

3. How is potash alum prepared (sep 20) ( in.p.no : 40)

4. What are the factors responsible for the anomalous behaviour of first element of the p-block ? ( inst 20) aug21 ( B/B :1)

5. What is inert pair effect ? (may 22)(in.p.no : 30 )

6. What are the uses of boric acid ? (may 22) (jul 22) (in.p.no : 35)

7. A hydride of second period alkali metal (A) on reaction with compound of boron B in the presence of ether to give a reducing agent C. Identify A B and c (sep 20) ( B/ B : 18) (compulsory 2 mark )

8. There is only marginal difference in decrease in ionisation enthalpy from aluminium to thallium explain Why ? (mar 20) ( in.p.no : 29 ) (compulsory 3 mark )

9. Mention the factors responsible for the anomalous behaviour of the first element of p-block (aug21)(in.p.no : 29)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 3.P-BLOCK ELEMENTS-II

#### ONE MARKS :-

- Formula for hyponitrous acid (mar20)  
(a) HOONO      (b)  $\text{H}_2\text{N}_2\text{O}_2$       (c)  $\text{HNO}_2$       (d)  $\text{HNO}_4$
- \_\_\_\_\_ is used for producing smoke screen as it gives large smoke (ins20)  
(a) Borax      (b) Diborane      (c) Potash alum      (d) **Phosphine**
- The oxidation state of chlorine in  $\text{Cl}_2\text{O}_7$  is (sep20)  
(a) +6      (b) **+7**      (c) +4      (d) +5
- which one of the following compounds is not formed? (Aug21)  
(a)  $\text{XeF}_2$       (b)  $\text{XeOF}_4$       (c)  **$\text{NeF}_2$**       (d)  $\text{XeO}_3$
- An element belongs to group-15 and 3rd period of the periodic table .its electronic configuration would be (May22)  
a)  $1\text{S}^2 2\text{S}^2 2\text{P}^6 3\text{S}^2 3\text{P}^2$       b)  $1\text{S}^2 2\text{S}^2 2\text{P}^4$   
c)  **$1\text{S}^2 2\text{S}^2 2\text{P}^6 3\text{S}^2 3\text{P}^3$**       d)  $1\text{S}^2 2\text{S}^2 2\text{P}^3$
- $\text{XeF}_6$  on complete hydrolysis produces (jul22)  
a)  $\text{XeOF}_4$       b)  $\text{XeO}_2\text{F}_2$       c)  **$\text{XeO}_3$**       d)  $\text{XeO}_2$

#### 2 & 3 & 5 MARK QUESTIONS :-

- Give the uses of helium( inst 20)aug 21 ( B/ B : 7) and argon b/b -15
- What are inter halogens compounds ? (may 22)  
mention their properties ( In.p.no : 89)
- What are interhalogen compounds ? give two examples (B/B-5) (aug 21)
- How is bleaching powder prepared ? Mar 2020 (may 22) (in.p.No : 85)
- Write the balanced equation for the overall reaction of chlorine with cold NaOH and hot NaOH( inst 20) ( B/ B : 9 )
- What are the uses of oxygen ? (may 22) (in.p.no: 75 )
- Give the uses of argon (jul 22) (b/b- 15 )
- Write the properties of inter halogen compounds (jul 22) (in.p.no: 89 )
- 9.Powdered  $\text{CaCO}_3$  reacts much faster with dilute HCl than with the same mass of  $\text{CaCO}_3$  as marble give Reason ? (sep 20) ( in.p.no : 86)  
(compulsory 3 mark )**
- Sulphuric acid dibasic acid prove it(sep 20)( in.p.no : 78)
- Write a short note on Holmes signal( inst 20)( in.p.no : 70)
- HF can't be stored in glass bottle (mar 20)( in.p.no : 88)
- explain the Deacons's process for manufacture of chlorine(sep20)p.no:83
- write the molecular formula and draw the structure of sulphurous acid marshals acid (mar 20) ( in.p.no ; 80,81 )
- What type of hybridization is found in the following (sep 20)  
I)  $\text{BrF}$ . Ii)  $\text{BrF}_5$ . Iii)  $\text{BrF}_3$ . ( B/B : 22)
- explain the bleaching action of Sulphur dioxide.(in.p.no.77) (aug 21)  
And reducing property

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 4. TRANSITION ELEMENTS AND INNER TRANSITION ELEMENTS

#### ONE MARKS :-

1. The transition element which has only +3 oxidation state is (mar20)  
 (a) Ni (b) Mn (c) Cr (d) Sc
2. The actual position of lanthanoids in the periodic table is at (ins20)  
 (a) group number 3 period number 4 (b) group number 6 period number 3  
 (c) group number 4 period number 4 (d) **group number 3 period number 6**
3.  $\text{CH}_3\text{-CHO} + \text{CO} \xrightarrow{\text{Rh/ Ir complex}}$  ? (Aug21)  
 (a) Poly propylene (b) Butan-1-al  
 (c) **Acetic acid** (d) Acetate
4. Which of the following oxidation states in most common among the lanthanoids? (May22)  
 a) +5 b) +4 c) **+3** d) +2
5. The actinoid elements which show the highest oxidation state of +7 are (jul22)  
 a) **Np, Pu, Am** b) U, Fm, Th c) U, Th, Md d) Es, No, Lr

#### 2 & 3 & 5 MARK QUESTIONS :-

1. Calculate the number of unpaired electrons in  $\text{Ti}^{3+}$ ,  $\text{Mn}^{2+}$  and calculate the spin only magnetic moments? (b/b - 10) aug 21
2. Compare the properties of lanthanides and actinides. (jul 22) (b/b - 15)
3. What is lanthanide or lanthanoid contraction explain its consequences (sep 20) (B/B : 7)
4. What are interstitial compounds (inst 20) (B/B : 9) (aug 21)
5. Why d block elements exhibit variable oxidation state? (In.p.no: 106) (aug 21)
6. Which is more stable  $\text{Fe}^{2+}$  or  $\text{Fe}^{3+}$ ? why? (may 22) (b/b-15)
7. What are the properties of interstitial compounds? (may 22) (in.p.no: 111)
8. Write a note on Zeigler-Natta catalysis. Give its use (jul 22)  
 a). what is Zeigler-Natta catalyst? in which reaction it is used? give equation. (In.p.no : 111)
9. Write chromyl chloride test (mar 20) (in.p.no : 114)
10. Classify the following elements into d block and f block elements. Mar 20  
 a) tungsten. b) ruthenium c) promethium. d) einsteinium (in.p.no : 101)
11. Which metal in the 3d series exhibits +1 oxidation state most frequently and why? (inst 20) (B/B : 25)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

## 5. COORDINATION CHEMISTRY

**ONE MARKS :-**

1. Fac-mer isomerism is shown by : (ins20)

- (a)  $[\text{Co}(\text{en})_3]^{3+}$  (b)  $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$   
 (c)  $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$  (d)  $[\text{Co}(\text{NH}_3)_5\text{Cl}] \text{SO}_4$

2. match the following (sep20)

- 1)  $[\text{Ni}(\text{CO})_4]$  i) trigonal bipyramidal  
 2)  $[\text{Pt}(\text{NH}_3)_4]^{2+}$  ii) octahedral  
 3)  $[\text{Fe}(\text{CO})_5]$  iii) tetrahedral  
 4)  $[\text{Co}(\text{NH}_3)_6]^{3+}$  iv) square planar

- (a) (1)-(ii) (2)-(iii) (3)-(iv) (4)-(i) (b) (1)-(iii) (2)-(i) (3)-(iv) (4)-(ii)  
 (c) (1)-(iii) (2)-(iv) (3)-(i) (4)-(ii) (d) (1)-(iv) (2)-(i) (3)-(ii) (4)-(iii)

3. In  $\text{K}_4[\text{Fe}(\text{CN})_6]$  the co-ordination number of  $\text{Fe}^{2+}$  is \_\_\_\_\_ (Aug21)

- (a) 4 (b) 2 (c) 3 (d) 6

4. A complex in which the oxidation number of the metal is zero is (May22)

- a)  $\text{K}_4[\text{Fe}(\text{CN})_6]$  b)  $[\text{Fe}(\text{CN})_3(\text{NH}_3)_3]$  c)  $[\text{Fe}(\text{CO})_5]$  d) both b and c

5. An example for double salt (jul22)

- a)  $\text{FeSO}_4$  b)  $\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$  c)  $\text{K}_4[\text{Fe}(\text{CN})_6]$  d)  $\text{K}_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$

6. The magnetic moment of 1.73 BM will be shown by one among the following (sep20)

- (a)  $[\text{Cu}(\text{NH}_3)_4]^{2+}$  (b)  $[\text{Ni}(\text{CN})_4]^{2-}$   
 (c)  $\text{TiCl}_4$  (d)  $[\text{CoCl}_6]^{4-}$

**2 & 3 & 5 MARK QUESTIONS :-**

1. Give the difference between double salt and coordination compound (sep20)(aug21)(B/B:13)

2. write the postulates of werner's theory ( inst 20) ( may 22) ( B/B : 14)

3. what are the limitation of VB theory ? (B/B-24). ( jul 22) ( aug 21)

4. based on the VB theory ,explain why  $[\text{Ni}(\text{CN})_4]^{2-}$  it is diamagnetic. (In.p.no.150) ( aug 21)

5. Calculate the magnetic moment and magnetic property of  $[\text{CoF}_6]^{3-}$  (mar20)

( in.p.no : 151)

6. Define Coordination number ( may 22) (In.p.no :134)

7. Write the following for the complex  $[\text{Ag}(\text{NH}_3)_2]^+$  ( may 22) (In.p.no :140 )

a) ligand b) central metal ion c) IUPAC name ( may 22)(compulsory 3 mark )

8. Write the IUPAC ligand name for the following ( jul 22) (In.p.no :137 )

- a)  $\text{C}_2\text{O}_4^{2-}$  b)  $\text{H}_2\text{O}$  c)  $\text{Cl}^-$

9. write any two hydrate isomers of the complex with the molecular formula  $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$  ( mar 20)( in.p.no : 143)

10.  $[\text{Sc}(\text{H}_2\text{O})_6]^{3+}$  is colourless explain ( mar 20) ( B/B : 10 )

11. Indicate the possible type of isomerism for the following complexes

( sep 20) a)  $[\text{Co}(\text{en})_3]^{3+}$  ( in.p.no : 146) b)  $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]^{2+}$  ( in.p.no : 143)

12. mention the metal complex and its metal ions are used in biological system ( inst 20) ( in.p.no : 167 )

13. Write the IUPAC name of the following ( in.p.no : 140 )

- i)  $[\text{Ag}(\text{NH}_3)_2]^+$  (mar 20) ii)  $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$  (mar 20)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 6.SOLID STATE

#### ONE MARKS :-

1. The vacant space in BCC lattice unit cell is (mar20)  
 (a) 26%                      (b) 48%                      (c) 23%                      (d) **32%**
2. Packing efficiency of body centred cubic (BCC) (ins20)  
 (a) 52.31%                      (b) **68%**                      (c) 86%                      (d) 52.13%
3. the formula used to identify density of unit cell (sep20)  
 (a)  $\rho = a^3 N_A \times nM$                       (b)  $a^3 N_A - nM$   
 (c)  $\rho = nM/a^3 N_A$                       (d)  $\rho = a^3 N_A / nM$
4. The crystal with a metal deficiency defect is. (Aug21)  
 (a) ZnO                      (b) NaCl                      (c) KCl                      (d) **FeO**
5. The crystal with a metal deficiency defect is (May22)  
 a) ZnO                      b) NaCl                      c) KCl                      **d) FeO**
6. Graphite and Diamond are (jul22)  
 a) Covalent and molecular crystals                      b) ionic and covalent crystals  
**c) both are covalent crystals**                      d) both are molecular crystals

#### 2 & 3 & 5 MARK QUESTIONS :-

1. Write a note on Frenkel defect (mar 20) (jul 22) (B/B : 24 )
2. Differentiate between crystalline solid and amorphous solid (sep 20) (may22) (B/B:3)
3. Distinguish between isotropy and anisotropy in solids (inst20) (in.p.no:178)
4. Explain Schottky defect (inst 20) (B/B : 9 )
5. Define unit cell (B/B-1) (aug 21).
6. Define covalent solids (may 22) (in.p.no :179)
7. Define unit cell (jul 22) (b/b-1)
8. What is packing efficiency? (jul 22) (in.p.no :187)
9. What is meant by the term coordination number? What is the coordination number of atoms in a BCC structure? (B/B-16). (aug 21)
10. If the radius ratio of the compound is between 0.155 to 0.225, find out the coordination number and structure of the compound. (sep20) (in.p.no:192)
11. **Classify the following into Covalent, molecular, ionic, and metallic solids (B/B-4) (aug 21) (compulsory 3 mark)**  
 i) Diamond ii) brass iii) NaCl iv) Naphthalene v) glucose vi) SiO<sub>2</sub> vii) P<sub>4</sub> viii) Brass  
 ix) Iodine
12. If the number of close packed spheres is 6, calculate the number of octahedral voids and tetrahedral voids generated (mar 20) (in.p.no :190 )

## 12TH CHEMISTRY PUBLIC QUESTION BANK

## 7. CHEMICAL KINETICS

**ONE MARKS :-**

1. time required for the reactant concentration to reach one half of its initial value is called (mar20)

(a) half life period

(b) first order

(c) zero order

(d) second order

2. The rate constant of a reaction is  $5.8 \times 10^{-2} \text{s}^{-2}$ . the order of reaction is (ins20)

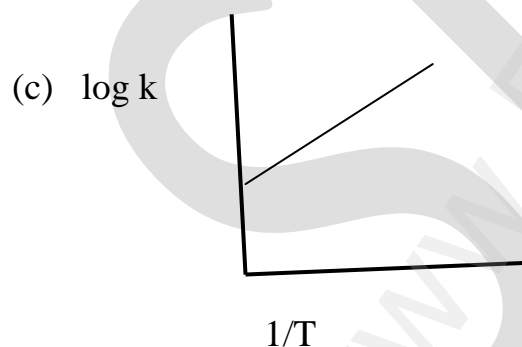
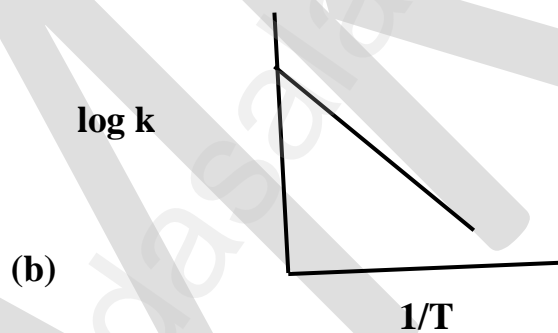
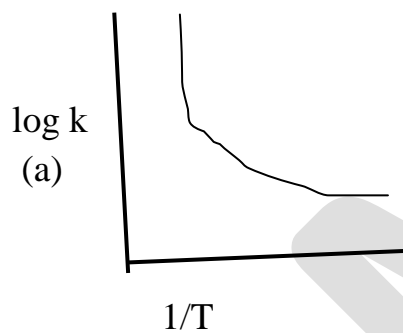
(a) First order

(b) Zero order

(c) second order

(d) Third order

3. among the following graphs showing variation of rate constant with temperature (T) for a reaction, the one that exhibits Arrhenius behavior over the entire temperature range is (Aug21)



(d) both (b) and (c)

4. If 75% of a first order reaction was completed in 60 min, 50% of the same reaction under the same conditions would be completed in : (May22)

a) 35 minutes

b) 20 minutes

c) 75 minutes

d) 30 minutes

5. Half-life period for first order reaction : (jul22)

a)  $t_{1/2} = \frac{0.6932}{K}$

b)  $t_{1/2} = \frac{K}{0.6932}$

c)  $t_{1/2} = \frac{2.303}{K}$

d)  $t_{1/2} = \frac{K}{2.303}$



**12TH CHEMISTRY PUBLIC QUESTION BANK****2 & 3 & 5 MARK QUESTIONS :-**

1. Derive integrated rate law for a first order reaction  $A \rightarrow \text{product}$  (mar 20) (in.p.no : 212. )
2. the rate constant for a first order reaction is  $1.54 \times 10^{-3} \text{ s}^{-1}$ . calculate its half life time (sep 20) ( b/b- 23 )
3. Write Arrhenius equation and explain the terms involved (may22)(b/b-14)
4. write two difference between rate and rate constant of a reaction (in.p.no: 209) (aug 21)
5. derive integrated rate law for a zero order reaction  $A \rightarrow \text{product}$ . (B/B-3). (aug 21) (jul 22)
6. Explain the effect of catalyst on reaction rate with an example (inst20)(B/B :9)
7. i) Give examples for the first order reactions. (may 22) (in.p.no : 213)
8. Define order and molecularity of a reaction (jul 22) (in.p.no : 210)
9. The rate of the reaction.  $x + 2y \rightarrow \text{product}$  is  $4 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$  if  $[x] = [y] = 0.2 \text{ M}$  and rate constant at 400k is  $2 \times 10^{-2} \text{ s}^{-1}$  what is the overall order of the reaction ? (inst 20) ( in.p.no : 211)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

## 8. IONIC EQUILIBRIUM

**ONE MARKS :-**

- The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide respectively. (mar20)
  - acidic,acidic,acidic
  - acidic ,acidic ,basic
  - Basic acidic basic**
  - basic,netral ,basic
- Conjugated base for bronsted acids  $H_2O$  and  $HF$  are : (ins20)
  - $OH^-$  and  $H_2FH^-$  respectively
  - $H_3O^+$  and  $F^-$  respectively
  - $OH^-$  and  $F^-$  respective**
  - $H_3O^-$  and  $H_2F^+$  respectively
- The pH of an aqueous solution is zero. The solution is (sep20)
  - neutral
  - basic
  - slightly acidic
  - stongly acidic**
- The pH of an aqueous solution is zero. The solution is (Aug21)
  - Neutral
  - Slightly acidic
  - Basic
  - stongly acidic**
- Which of the following can act as lowery-bronsted acid as well as base ? (May22)
  - $HPO_4^{2-}$**
  - HCl
  - $Br^-$
  - $SO_4^{2-}$
- Which of these in not likely to act as lewis base ? (jul22)
  - $BF_3$**
  - $PF_3$
  - CO
  - $F^-$

**2 & 3 & 5 MARK QUESTIONS :-**

- Derive henderson equation (mar 20) ( in.p.no : 18. )
- Define buffer action (sep 20) ( in.p.no : 16 )
- Define common ion effect (sep 20) (May22) (B/B : 11) with example
- Derive an expression for ostwald dilution law (sep 20) (B/B : 12) (only law) (aug 21)
- Define ionic product of water .Give its value at room temperature ( inst20)( B/B : 10)
- what are Lewis acid and bases give one example for each (mar 20) (jul 22) ( B/ B : 1)
- Define  $p^H$  (b/b - 13) (May22)
- What are the limitations of Arrhenius concept ? (May22)(jul 22)(p.no:3 )
- What is buffer solution ? Give an example (jul 22) (in.p.no :16 )
- Calculate the pH of 0.1 M  $CH_3COONa$  solution ( $p_{ka}$  for  $CH_3COOH$  is 4.74)(inst20)(ipn:24)
- Write the pH value of following substance (mar 20) ( in.p.no : 10. )
  - Vinegar
  - black coffee.
  - packing soda s
  - oapy water
- Identify the conjugate acid base pair for the following reaction in aqueous solution (sep 20) (B/B : 3)
 

(A) $HS^- (aq) + HF$	$\rightleftharpoons$	$F^- (aq) + H_2S(aq)$
(B) $HPO_4^{2-} + SO_3^{2-}$	$\rightleftharpoons$	$PO_4^{3-} + HSO_3^-$
- Classify the following into Lewis acid and Lewis bases( inst 20)(in.p.no : 5)
  - $BF_3$
  - $CO_2$
  - MgO
  - $CH_3$
- find the pH of buffer sotion containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid . $K_a$  for acetic acid is  $1.8 \times 10^{-5}$ . (In.p.no.19) (aug 21)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 9.ELECTRO CHEMISTRY

#### ONE MARKS :-

1. how many faradays of electricity are required for the following reaction to occur  
 $\text{MnO}_4^- \rightarrow \text{Mn}^{2+}$ . (mar20)  
 (a) 7F                      (b) **5F**                      (c) 3F                      (d) 1F
2. Laptops have \_\_\_\_\_ (mar20)  
 (a) Lead storage battery                      (b) Fuel cell  
 (c) Mercury button cell                      (d) **Lithium-ion battery**
3. In  $\text{H}_2\text{-O}_2$  fuel cell the reaction occurs at cathode is (sep20)  
 (a)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$                       (b)  $\text{H}^+ + \text{e}^- \rightarrow 1/2 \text{H}_2$   
 (c)  $\text{O}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l}) + 4\text{e}^- \rightarrow 4\text{OH}^-(\text{aq})$                       (d)  $\text{H}^+(\text{aq}) + \text{OH}^-(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l})$
4. The number of electrons that have a total charge of 9650 coulombs is (Aug21)  
 (a)  **$6.022 \times 10^{22}$**                       (b)  $6.22 \times 10^{23}$   
 (c)  $6.022 \times 10^{-34}$                       (d)  $6.022 \times 10^{24}$
5. Faraday constant is defined as (May22)  
 a) Charge required to deposit one mole of substance                      b) charge carried by 1 electron  
 c) Charge carried by  $6.22 \times 10^{10}$  electrons                      (d) **Charge carried by one mole of electrons**
6. How many faradays of electricity are required for the following reactions to occur ?  
 $\text{MnO}_4^- \rightarrow \text{Mn}^{2+}$  (jul22)  
 a) **5F**                      b) 3F                      c) 1F                      d) 7F

#### 2 & 3 & 5 MARK QUESTIONS :-

1. Define equivalent conductance (In.p.no : 37) (aug 21)
2. Mention any two factors that affect electrolytic conductance. p.no:3 (aug21)  
 What are the factors that affect electrolytic conductance ? (May22)
3. State Faraday's law of electrolysis ? (B/B-5). (aug 21)
4. Derive an expression for Nernst equation (inst20) (May22) (jul22) (B/B : 24)
5. State Kohlrausch law and explain any one of the applications (sep20) (B/B:3)
6. A conductivity cell has two platinum electrodes separated by a distance of 1.5 cm and the cross-sectional area of each electrode is 4.5 sq cm. Using this cell, the resistance of 0.5 N electrolytic solution was measured as 15 ohms. Find the specific conductance of the solution (mar 20) (in.p.no : 35)
7. **A solution of silver nitrate is electrolysed for 30 minutes with a current of 2 Ampere. Calculate the mass of silver deposited at the cathode. (inst 20) (in.p.no : 55) (model) (compulsory 2 mark)**
8. **A solution of silver nitrate is electrolysed for 20 minutes with a current of 2 ampere. Calculate the mass of silver deposited at the cathode. (In.p.no : 55) jul22 (compulsory 3 mark)**
9. How are metals protected from corrosion by cathodic protection method? (mar20) (in.p.no:61)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 10.SURFACE CHEMISTRY

#### ONE MARKS :-

- when  $\Delta S < 0$  and  $T\Delta S$  is negative : (ins20)
  - adsorption is exothermic
  - absorption is exothermic
  - adsorption is endothermic
  - absorption is endothermic
- The mechanism proposed for the enzyme catalysis reaction is (sep20)
  - $P + E \xrightarrow{\hspace{1cm}} E+S \xrightleftharpoons{\hspace{1cm}} ES \xrightarrow{\hspace{1cm}} P+E$
  - $E + S \xrightleftharpoons{\hspace{1cm}} ES \xrightarrow{\hspace{1cm}} P+E$
  - $ES \xrightleftharpoons{\hspace{1cm}} P + E \xrightarrow{\hspace{1cm}} E + S$
  - $E + S \xrightarrow{\hspace{1cm}} ES \xrightleftharpoons{\hspace{1cm}} P + E$
- Match the following. (Aug21)
 

1. Emulsion	i) whipped cream
2.gel	ii) ink
3.foam	iii) cream
4.sol	iv) butter

  - (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)
  - (1)-(iii) (2)-(i) (3)-(ii) (4)-(iv)
  - (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii)
  - (1)-(iii) (2)-(iv) (3)-(i) (4)-(ii)**
- The phenomenon observed when a beam of light is passed through a colloidal solution is (Aug21)
  - Coagulation
  - Cataphoresis
  - Tyndall effect.**
  - Electrophoresis
- Which one of the following is an example for homogeneous catalysis ? (May22)
  - Hydrogenation of oil
  - manufacture of ammonia by haber's process
  - Hydrolysis of sucrose in presence of dil.HCl**
  - Manufacture of sulphuric acid by contact process
- Fog is colloidal solution of (May22)
  - liquid in gas**
  - solid in gas
  - gas in liquid
  - gas in gas
- The phenomenon observed when a beam of light is passed through a colloidal solution is (jul22)
  - cataphoresis
  - Electrophoresis
  - coagulation
  - tyndall effect**

#### 2 & 3 MARK QUESTIONS :-

- give any three difference between chemisorption and physisorption (mar 20) ( B/B : 2 )
- Write a note on tyndall effect (sep 20) ( in.p.no : 93. )
- Write any five characteristics of catalysts (sep 20) (May22) ( in.p.no : 78. )
- describe adsorption theory of catalysis. (B/B-24) (jul 22) (aug 21)
- What is mean by electro osmosis? (B/B-20) (aug 21)
- Write a note on Electrophoresis. (May22) (in.p.no : 94)
- What is homogeneous catalysis ? Give example (May22) (b/b-23 )
- What is heterogeneous catalysis ? give example (jul 22) (b/b-23 )
- What is inversion of phase ? give an example( inst 20)( in.p.no : 98 )
- Write this dispersed phase and dispersion medium of butter (mar 20) ( in.p.no : 88. )
- Mention the shape of the following colloidal particles ( in.p.no:93)(mar20)
  - As<sub>2</sub>S<sub>3</sub>
  - blue gold sol
  - tungstic acid sol
- Identify the auto catalyst in the following reaction( inst 20) ( in.p.no : 79 )
  - $CH_3COOC_2H_5 + H_2O \rightarrow CH_3COOH + C_2H_5OH$
  - $AsH_3 \rightarrow 2As + 3H_2$
- Name the factors affecting adsorption( inst 20) ( in.p.no : 72 )

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 11. HYDROXY COMPOUNDS AND ETHERS

#### ONE MARKS :-

- Williamson synthesis of preparing dimethyl ether is a/an(mar20)
  - Electrophilic substitution reaction
  - $S_N1$  reaction
  - $S_N2$  reaction**
  - Electrophilic addition reaction(mar20)
- the major product obtained when phenol reacts with conc  $H_2SO_4$  at 280 K is :
  - Salicylic acid
  - Picric acid
  - O-phenol sulphonic acid**
  - p-phenol sulphonic acid
- in the preparation of ether by Williamson synthesis using primary alkyl halide involves : (ins20)
  - $E_1$  mechanism
  - $S_N2$  mechanism**
  - $SN^1$  mechanism
  - $E_2$  mechanism
- cold dilute alkaline  $KMnO_4$  is known as. (sep20)
  - Schiff's reagent
  - Fenton's reagent
  - Bayer's reagent**
  - Nessler's reagent
- The common name of 1,2,3 trihydroxy benzene is : (sep20)
  - pyrogallol**
  - Resorcinol
  - Hydroxyquinol
  - phloroglucinol
- on reacting with neutral ferric chloride. Phenol gives (Aug21)
  - Dark green colour
  - Red colour
  - No colouration
  - violet colour**
- $HO-CH_2-CH_2-OH$  on heating with periodic acid gives (May22)
  - methanal**
  - methanoic acid
  - $CO_2$
  - Glyoxal
- Which of the following compounds can be used as antifreeze in automobile radiators(jul22)
  - Methanol
  - ethanol
  - Neo-pentyl alcohol
  - ethan-1,2-diol**

#### 2 & 3 & 5 MARK QUESTIONS :-

- Give the coupling reaction of phenol (mar 20) ( in.p.no : 131 )( dye test)
- How to distinguish  $1^0$ ,  $2^0$ , and  $3^0$  alcohol by Victor Meyer test (sep 20) ( in.p.no : 111 )

## 12TH CHEMISTRY PUBLIC QUESTION BANK

3. Convert glycerol to acrolein (inst 20) (in.p.no : 121) (OR)

What happens when glycerol react  $\text{KHSO}_4$  OR  $\text{Con H}_2\text{SO}_4$ ?

4. Explain auto oxidation of ethers (inst 20) (in.p.no : 137)

5. What is Baeyer's reagent? how it is useful to convert ethene to ethane 1,2 diol (inst 20) (in.p.no : 110)

6. How are the following conversion effected? (aug 21)

i) ethylene glycol  $\rightarrow$  acetaldehyde (in.p.no.119)

ii) glycerol  $\rightarrow$  acrolein (in.p.no.121)

7. Differentiate primary secondary and tertiary alcohols using Lucas test (in.p.no.110)(aug 21)

8. Give the uses of diethyl ether (in.p.no.138). (aug 21)

9. Write any one method of preparation of diethyl ether (May 22) (p.no:134)

10. What are the uses of glycerol (jul 22) (in.p.no : 122)

11. Write a bromination reaction of anisole (jul 22) (in.p.no : 138)

12. Mention the mechanism in the following reactions (sep 20) (in.p.no : 137)

i) One mole of HI reacts with methoxy ethane

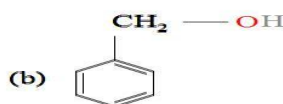
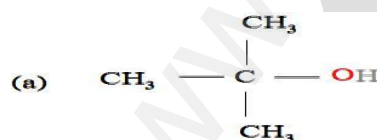
ii) One mole of HI reacts with 2-methoxy 2-methylpropane

13. Why is C-O-C bond angle in ether slightly greater than the bond angle (mar 20) (in.p.no : 133) (compulsory 2 mark)

14. How will you prepare the following by using Grignard reagent (mar 20)

a). Propan-1-ol      b). Propan-2-ol (in.p.no : 108)

15. Give the IUPAC names (May 22)



a) 2-methyl-2-propanol      b) phenyl methanol

## 12TH CHEMISTRY PUBLIC QUESTION BANK

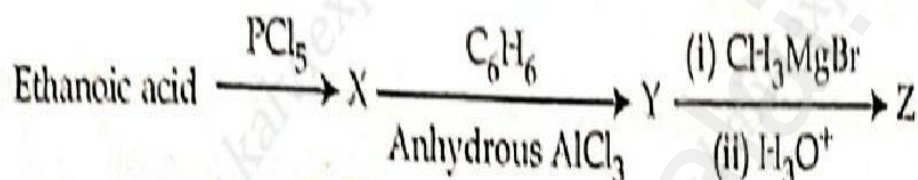
12. CARBONYL COMPOUNDS AND  
CARBOXYLIC ACID**ONE MARKS :-**

1. Assertion : p-N,N- dimethyl amino benzaldehyde undergoes benzoin (mar20)  
condensation

Reason : the aldehydic(CHO)group is meta directing.

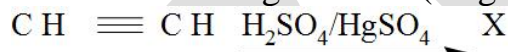
- (a) Both Assertion and reason are false  
 (b) Both assertion and reason are true but reason is the correct explanation of assertion  
 (c) **Both assertion and reason are true but reason is not the correct explanation of assertion**  
 (d) Assertion is true but Reason is false

2. Predict the product Z in the following series of reactions(ins20)



- (a)  $(\text{CH}_3)_2\text{C}(\text{OH})\text{C}_6\text{H}_5$  (b)  $\text{CH}_3\text{CH}(\text{OH})\text{C}_6\text{H}_5$   
 (c)  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$  (d)  $\text{C}_6\text{H}_5\text{-CH}_2\text{-OH}$
3. \_\_\_\_\_ is used in the manufacture of thermosoftening plastic perspex(sep20)
- (a) Benzaldehyde (b) **Acetone**  
 (c) Acetaldehyde (d) Benzophenone

4. In the following reaction (Aug21)



Product 'X' will not give

- (a) Iodoform test (b) Tollen's test  
 (c) Fehling solution test (d) **victor meyer test.**
5. The formation of cyanohydrins from acetone is an example of (May22)
- a) electrophilic addition (b) nucleophilic substitution  
 (c) **nucleophilic addition** (d) electrophilic substitution
6. Which of the following represents the correct order of acidity in the given compounds(jul22)
- a)  **$\text{FCH}_2\text{COOH} > \text{CH}_3\text{COOH} > \text{BrCH}_2\text{COOH} > \text{ClCH}_2\text{COOH}$**   
 b)  $\text{FCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH} > \text{CH}_3\text{COOH}$   
 c)  $\text{CH}_3\text{COOH} > \text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH} > \text{BrCH}_2\text{COOH}$   
 d)  $\text{ClCH}_2\text{COOH} > \text{CH}_3\text{COOH} > \text{BrCH}_2\text{COOH} > \text{ICH}_2\text{COOH}$
7. Which of the following reduces tollen's reagent ? (jul22)
- a) **formic acid** (b) acetic acid (c) benzophenone (d) none of these

**12TH CHEMISTRY PUBLIC QUESTION BANK****2 & 3 & 5 MARK QUESTIONS :-**

1. name the catalyst used in rosenmund reduction and state its importance  
(mar 20) ( in.p.no : 151) Write a note on Rosenmund rerduction (jul 22)
2. formic acid reduces tollen's reagent whereas acetic acid does not reduce  
give reason (mar 20) (May22) ( in.p.no : 177 )
3. What is urotropine how it is prepared (sep 20) ( in.p.no : 158 ) and uses
4. Write the test for carboxylic acid group (sep 20) ( in.p.no : 177. )
5. Write the mechanism of aldol condensation reaction( inst 20) ( in.p.no : 161)
6. Give the test for carboxylic acid group (In.p.no : 177) (jul 22) (Aug21)
7. how will you convert benzaldehyde into the following compounds? (Aug21)
  - i) benzoin(in.p.no.164)
  - ii) cinnamic acid (B/B-15 ix)
  - iii) malachite green(B/B-15viii)
8. Write note on benzoin condensation. (jul 22)(in.p.no : 164)
9. What is formalin what is its use (mar 20)( in.p.no : 167)
10. Arrange the following in the increasing order of relative reactivity of acid derivative and mention the reason alone(sep 20)( in.p.no : 180.)  
 $\text{CH}_3\text{COOC}_2\text{H}_5$   $\text{CH}_3\text{COCl}$   $\text{CH}_3\text{CONH}_2$   $\text{CH}_3\text{COOCOCH}_3$
11. Explain Benedict's solution test( inst 20)( in.p.no : 167)
12. Write the haloform reaction with an example(May22)( p.no161)



## 12TH CHEMISTRY PUBLIC QUESTION BANK

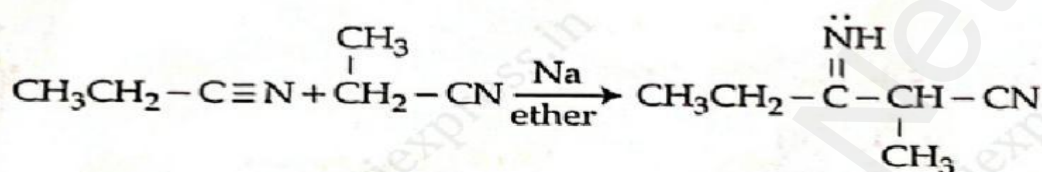
## 13.ORGANIC NITROGEN COMPOUNDS

**ONE MARKS :-**

1. Which one of the following is most basic? (mar20)

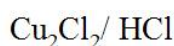
- (a) 2, 4-dibromo aniline (b) 2, 4-dichloro aniline  
(c) **2, 4-dimethyl aniline** (d) 2, 4-dinitro aniline

2.



The above reaction is : (ins20)

- (a) Thorpe nitrile condensation (b) **Levine and Hauser acetylation**  
(c) Lederer-manasse reaction (d) Aldol condensation



3.  $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \longrightarrow \text{C}_6\text{H}_5\text{Cl} + \text{N}_2$  this reaction is known as (sep20)

- (a) Gattermann reaction (b) Gomberg reaction  
(c) Schotten-Baumann reaction (d) **Sandmeyer reaction**

4. IUPAC name for the amine  $\text{H}_2\text{N}-\text{CH}_2-(\text{CH}_2)_4-\text{CH}_2-\text{NH}_2$  (Aug21)

- (a) **Heptane-1,7-diamine** (b) Hexamethylene diamine  
(c) Hexane-1,6-amine (d) Hexane-1,6-diamine

5. Which of the following reagent can be used to convert nitrobenzene to aniline (May22)

- a) Zn/Hg/NaOH (b) Zn/NH<sub>4</sub>Cl (c) **Sn/HCl** (d) All of these

6. Aniline + benzoyl chloride  $\xrightarrow{\text{NaOH}}$   $\text{C}_6\text{H}_5-\text{NH}-\text{COC}_6\text{H}_5$ . this reaction is known as (jul22)

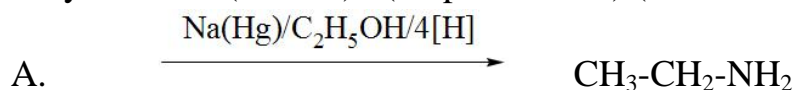
- a) Fridel- crafts reaction (b) HVZ reaction  
(c) **Schotten-Baumann reaction** (d) Kolbe's reaction

**2 & 3 MARK QUESTIONS :-**

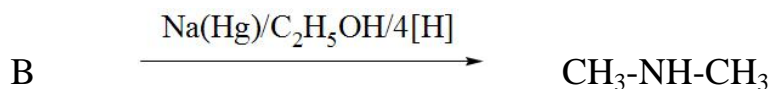
1.i) How is chloropicrin prepared (mar 20) ( in.p.no : 203)

ii) sand meyer reaction

2. Identify A and B (mar 20). ( in.p.no : 208. ) ( Mendius reaction)



## 12TH CHEMISTRY PUBLIC QUESTION BANK



3. Aniline does not undergo Friedel-Crafts reaction. Give reason (Sep 20) (B/B: 8i)

4. Write short note on Gabriel phthalimide synthesis (Sep 20) (May 22) (B/B: (6)3)

5. Name the reducing agent used in the reduction of nitrobenzene to the following compounds (Inst 20) (B/B : 4)

A). Aniline –vii

B). phenyl hydroxylamine vi

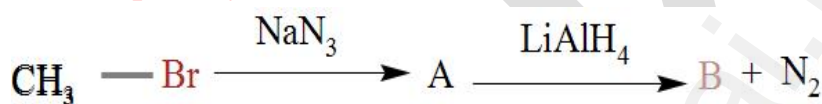
C). Nitroso benzene-203

D). Mustard oil reaction (B/B : 6 vi)

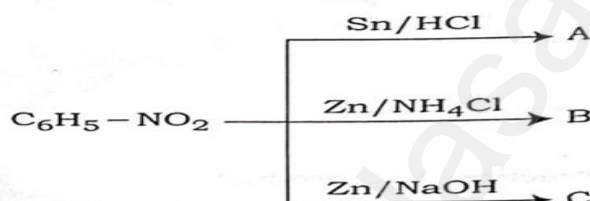
6. Write an electrolytic reduction of nitrobenzene-204

7. Identify A and B in the following sequence of reactions (May 22)

(in.p.no : 210) ( compulsory 2 mark)



8. Identify compounds A, B and C for the following (Jul 22) (in.p.no : 203)



( compulsory 3 mark)

9. Write a note on (Jul 22) (b/b-6)

i) Bromination of aniline

ii) Mustard oil reaction.

10. What is Gomberg reaction? Explain (Mar 20) (B/B : 9 IX)

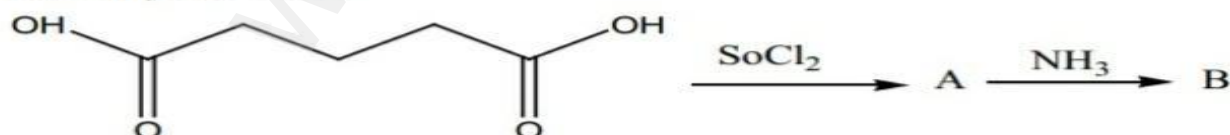
11. How is aryl halide prepared by using  $\text{Cu}_2\text{Cl}_2/\text{HCl}$  (or)  $\text{Cu}_2\text{Br}_2/\text{HBr}$ ?

(Inst 20) (in.p.no : 220) ( compulsory 2 mark)

12. What is carbylamine reaction (b/b –6v) (May 22)

13. (Sep 20) (b/b –13)

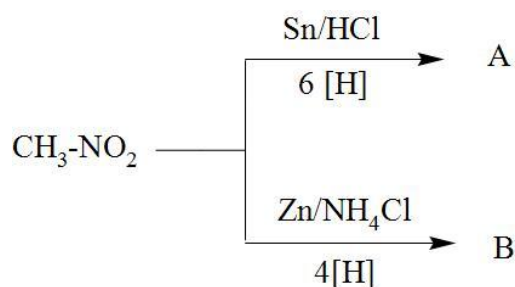
i. Identify A, B and C



14. From the following reaction identify A and B (Aug 21) (in.p.no.202)

( compulsory 2 mark)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

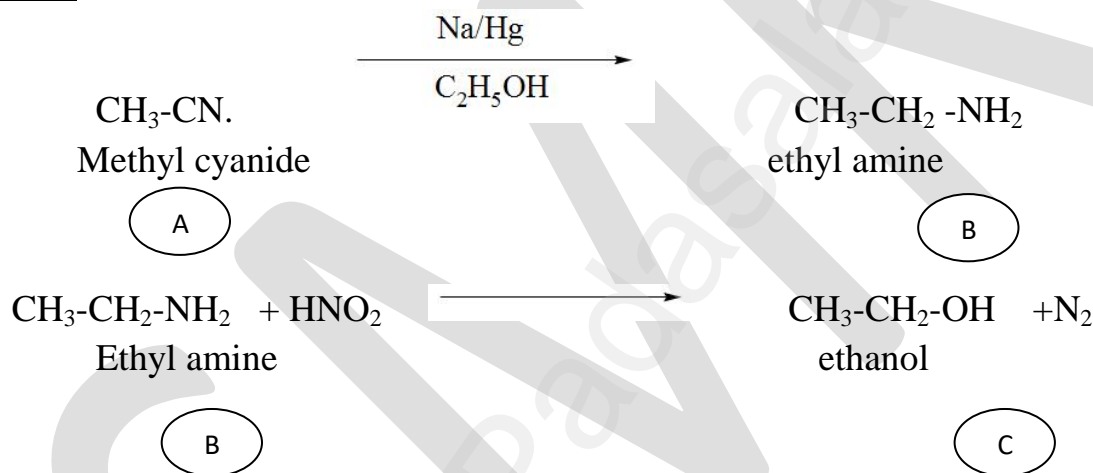


Answer :-

A =  $\text{CH}_3\text{-NH}_2$  (Methyl amine), B =  $\text{CH}_3\text{-NH}_2\text{OH}$  (N-methyl hydroxylamine)

15. A compound 'A' of molecular formula  $\text{C}_2\text{H}_3\text{N}$  on reduction with  $\text{Na(Hg)/C}_2\text{H}_5\text{OH}$  gives 'B' of molecular formula  $\text{C}_2\text{H}_7\text{N}$  which undergoes carbylamine test. Compound 'B' on reduction with nitrous acid gives compound 'C' of molecular formula  $\text{C}_2\text{H}_6\text{O}$  by liberating nitrogen. Identify A, B and C and write the reaction involved. (Aug21)

Answer :-



S.NO	COMPOUND	NAME	FORMULA
1	A	Methyl cyanide	$\text{CH}_3\text{-CN}$
2	B	Ethyl amine	$\text{CH}_3\text{-CH}_2\text{-NH}_2$
3	C	Ethanol	$\text{CH}_3\text{-CH}_2\text{-OH}$

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 14. BIOMOLECULES

#### ONE MARKS :-

1. If one strand of the DNA has the sequence ATGCTTGA then the sequence of complementary strand would be (mar20)  
 (a) TACGRAGT      (b) **TACGAACT**      (c) TCCGAACT      (d) TACGTACT
2. Cheilosis is a vitamin deficiency disease caused by (ins20)  
 (a) Vitamin B<sub>6</sub>      (b) Vitamin B<sub>9</sub>  
 (c) Vitamin B<sub>7</sub>      (d) **Vitamin B<sub>2</sub>**
3. Glucose and mannose are epimers at (sep20)  
 (a) C3 carbon      (b) C4 carbon  
 (c) C1 carbon      (d) **C2 carbon**
4. The pyrimidine bases present in DNA are (Aug21)  
 (a) **cytosine and Thiamine**      (b) cytosine and Adenine  
 (c) cytosine and Uracil      (d) cytosine and Guanine
5. Which of the following amino acids are achiral ? (May22)  
 a) Proline      b) Alanine      c) **Glycine**      d) Leucine
6. Which of the following are epimers ? (jul22)  
 a) D(+)- glucose and D(+)-galactose      b) D(+)-glucose and D(+)-mannose  
 c) neither a and b      (d) **both a and b**

#### 2 & 3 & 5 MARK QUESTIONS :-

1. What is glycosidic linkage (mar 20) ( in.p.no : 247)
2. How are RNA molecules classified ? explain (sep 20) ( in.p.no : 264 )
3. Write a short note on peptide bond (B/B-6) (Aug21)
4. Give any three difference between DNA and RNA (B/B-5) (Aug21)
5. What is called zwitter ion ? give an example (jul 22) (In.p.no : 252 )
6. What are epimers ? give example (May22)(in.p.no : 224 )
7. i) Draw the structure of D(+) fructose(jul 22) (in.p.no :246 )
8. How are proteins classified based on their structure ? explain(mar20)(in.p.no : 254)
9. Write a note on denaturation of proteins(ins20)(in.p.no : 256)
10. Write any three biological importance of lipids?(ins20) (in.p.no : 258)

## 12TH CHEMISTRY PUBLIC QUESTION BANK

### 15.CHEMISTRY IN EVERYDAY LIFE

#### ONE MARKS :-

1. The medicinal value of drugs is measured in terms of its(mar20)
 

(a) Deoxyribose	(b) Gold number
(c) <b>Therapeutic Intex</b>	(d) Equilibrium constant
2. Match the following (ins20)
 

(1) Major tranquilizers	(i) Non steroidal anti-inflammatory drug
(2) Analgesics	(ii) propofol
(3) NSAIDs	(iii) clozapine
(4) Intravenous general anaesthetics	(iv) Aspirin

(a) (1) –(iii) (2)-(iv) (3)-(i) (4)-(ii)      (b) (1)-(i) (2)-(ii) (3)-(iii) (4)-(iv)

(c) (1)-(ii) (2)-(i) (3)-(iv) (4)-(iii)      (d) (1)-(iv) (2)-(iii) (3)-(ii) (4)-(i)
3. Amide- linked local anaesthetic is (sep20)
 

(a) Ranitidine	(b) Omeprazole
(c) Procaine	<b>(d) Lidocaine</b>

#### 2 & 3 & 5 MARK QUESTIONS :-

1. State any three advantage of food additives (mar 20)( in.p.no : 283 )
2. What is vulcanization (mar 20) ( B/B : 18)
- 3.. Give a brief account antioxidants (sep 20)( in.p.no : 283 )
4. How do you classify the following into various class of drugs (sep 20)
 

a). Milk of magnesia	b). Aspirin ( in.p.no : 278,279,280 )
c). penicillin	d). procaine
5. How is neoprene prepared ? ( inst 20) ( in.p.no : 292)
6. How do antiseptics differ from disinfectants ? ( inst 20) ( B/ B : 5 )
7. Name the vitamins whose deficiency causes (sep20) (in.p.no : 260)
 

(a) rickets	(b) Scurvy
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#### *Note :*

- The purpose of this material created is for students to get high marks and pass
- If you have any doubts about this material or you can contact me to give your Valuable comments

*Maybe any comments :*

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**12TH CHEMISTRY PUBLIC QUESTION BANK**

**YOUR HINTS**

