



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

## CHEMISTRY PREVIOUS YEAR QUESTIONS - TOPICWISE

### SOME BASIC CONCEPT OF CHEMISTRY –

C1101

2019

1. The number of moles of hydrogen molecules required to produce 20 moles of ammonia through Haber's process is:
- (1) 10 (2) 20  
(3) 30 (4) 40

Answer: (3)

2020

2. One mole of carbon atom weighs 12 g, the number of atoms in it is equal to, (Mass of carbon-12 is  $1.9926 \times 10^{-23}$  g)
- (1)  $6.022 \times 10^{23}$  (2)  $1.2 \times 10^{23}$   
(3)  $6.022 \times 10^{22}$  (4)  $12 \times 10^{22}$

Answer: (1)

2022

3. What mass of 95% pure  $\text{CaCO}_3$  will be required to neutralise 50 mL of 0.5 M HCl solution according to the following reaction?
- $$\text{CaCO}_3(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{l})$$
- [Calculate upto second place of decimal point]
- (1) 3.65 g (2) 9.50 g  
(3) 1.25 g (4) 1.32 g

Answer: (4)

### STRUCTURE OF ATOM – C1102 Since 2011

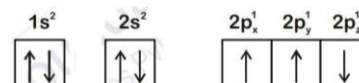
2017

4. Which one is the wrong statement?
- (1) The energy of 2s orbital is less than the energy of 2p orbital in case of Hydrogen like atoms.
- (2) de-Broglie's wavelength is given by  $\lambda = \frac{h}{mv}$ , where m = mass of the particle, v = group velocity of the particle
- (3) The uncertainty principle is  $\Delta E \times \Delta t \geq \frac{h}{4\pi}$
- (4) Half-filled and fully filled orbitals have greater stability due to greater exchange energy, greater symmetry and more balanced arrangement

Answer: (1)

2018

5. Which one is a wrong statement?  
(1) The electronic configuration of N atom is



- (2) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers.
- (3) Total orbital angular momentum of electron in 's' orbital is equal to zero.
- (4) The value of m for  $d_{z^2}$  is zero.

Answer: (1)

6. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc.  $\text{H}_2\text{SO}_4$ . The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

- (1) 2.8 (2) 3.0  
(3) 1.4 (4) 4.4

Answer : (1)

2019

7. Which of the following series of transitions in the spectrum of hydrogen atom falls in visible region?

- (1) Lyman series  
(2) Balmer series  
(3) Paschen series  
(4) Bracket series

Answer: (2)

2020

8. The number of angular nodes and radial nodes in 3s orbital are
- (1) 0 and 1, respectively  
(2) 0 and 2, respectively  
(3) 1 and 0, respectively  
(4) 3 and 0, respectively

Answer: (2)



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2021

9. A particular station of All India Radio, New Delhi broadcasts on a frequency of 1,368 kHz (kilohertz). The wavelength of the electromagnetic radiation emitted by the transmitter is: [speed of light  $c = 3.0 \times 10^8 \text{ ms}^{-1}$ ]
- (1) 21.92 cm                      (2) 219.3 m  
(3) 219.2 m                      (4) 2192 m

Answer: (2)

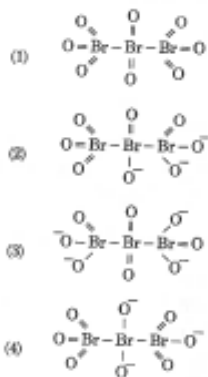
10. If radius of second Bohr orbit of the  $\text{He}^+$  ion is 105.8 pm, what is the radius of third Bohr orbit of  $\text{Li}^{2+}$  ion?
- (1) 1.587 pm                      (2) 158.7 Å  
(3) 158.7 pm                      (4) 15.87 pm

Answer: (3)

## Classification of Elements and Periodicity in Properties – C1103

2020

11. The correct structure of tribromooctaoxide is :



Answer: (1)

12. Match the element in column I with that in column II.
- |              |                       |
|--------------|-----------------------|
| Column I     | Column II             |
| (a) Copper   | (i) Non-metal         |
| (b) Fluorine | (ii) Transition Metal |
| (c) Silicon  | (iii) Lanthanoid      |
| (d) Cerium   | (iv) Metalloid        |

Identify the correct match :

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

Answer: (3)

2022

13. The IUPAC name of an element with atomic number 119 is
- (1) unununnium  
(2) ununoctium  
(3) ununennium  
(4) unnilennium

Answer: (3)

14. The IUPAC name of the complex-  
[Ag(H<sub>2</sub>O)<sub>2</sub>][Ag(CN)<sub>2</sub>] is:

- (1) dicyanidosilver(I) diaquaargentate(I)  
(2) diaquasilver(I) dicyanidoargentate(I)  
(3) dicyanidosilver(II) diaquaargentate(II)  
(4) diaquasilver(II) dicyanidoargentate(II)

Answer: (2)

## CHEMICAL BONDING AND MOLECULAR STRUCTURE – C1104

2017

15. Name the gas that can readily decolourises acidified  $\text{KMnO}_4$  solution:
- (1)  $\text{P}_2\text{O}_5$                       (2)  $\text{CO}_2$   
(3)  $\text{SO}_2$                       (4)  $\text{NO}_2$
16. Which one of the following pairs of species have the same bond order?

- (1)  $\text{N}_2$ ,  $\text{O}_2^-$                       (2)  $\text{CO}$ ,  $\text{NO}$   
(3)  $\text{O}_2$ ,  $\text{NO}^+$                       (4)  $\text{CN}^-$ ,  $\text{CO}$

Answer: (4)



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17. Which of the following molecules represents the order of hybridisation  $sp^2$ ,  $sp^2$ ,  $sp$ ,  $sp$  from left to right atoms?  
(1)  $CH_2 = CH - CH = CH_2$   
(2)  $CH_2 = CH - C = CH$   
(3)  $HC = C - C = CH$   
(4)  $CH_3 - CH = CH - CH_3$   
**Answer: (2)**
- 2018
18. Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is  $1s^2 2s^2 2p^3$ , the simplest formula for this compound is  
(1)  $Mg_2X$  (2)  $MgX_2$   
(3)  $Mg_2X_3$  (4)  $Mg_3X_2$   
**Answer: (2)**
19. Consider the following species:  $CN^+$ ,  $CN^-$ ,  $NO$  and  $CN$   
Which one of these will have the highest bond order?  
(1)  $CN^+$  (2)  $CN^-$   
(3)  $NO$  (4)  $CN$   
**Answer: (2)**
20. In which of the following forms is iron absorbed by plants?  
(1) Free element  
(2) Ferrous  
(3) Ferric  
(4) Both ferric and ferrous  
**Answer : (3)**
21. Among  $CaH_2$ ,  $BeH_2$ ,  $BaH_2$ , the order of ionic character is  
(1)  $BeH_2 < BaH_2 < CaH_2$   
(2)  $CaH_2 < BeH_2 < BaH_2$   
(3)  $BeH_2 < CaH_2 < BaH_2$   
(4)  $BaH_2 < BeH_2 < CaH_2$   
**Answer: (3)**
- 2019
22. 4d, 5p, 5f and 6p orbitals are arranged in the order of decreasing energy. The correct option is:  
(1)  $5f > 6p > 5p > 4d$   
(2)  $6p > 5f > 5p > 4d$   
(3)  $6p > 5f > 4d > 5p$   
(4)  $5f > 6p > 4d > 5p$   
**Answer: (1)**
23. Which of the following is incorrect statement?  
(1)  $PbF_4$  is covalent in nature  
(2)  $SiCl_4$  is easily hydrolysed  
(3)  $GeX_4$  (X = F, Cl, Br, I) is more stable than  $GeX_2$   
(4)  $SnF_4$  is ionic in nature  
**Answer: (1)**
24. Which of the following diatomic molecular species has only  $\pi$  bonds according to Molecular Orbital Theory?  
(1)  $O_2$  (2)  $N_2$   
(3)  $C_2$  (4)  $Be_2$   
**Answer: (3)**
- 2020
25. Match the coordination number and type of hybridisation with distribution of hybrid orbitals in space based on Valence bond theory.
- | Coordination number and type of hybridisation | Distribution of hybrid orbitals in space |
|---|--|
| (a) 4, $dsp^2$                                | (i) trigonal bipyramidal                 |
| (b) 4, $dsp^2$                                | (ii) octahedral                          |
| (c) 5, $sp^3d$                                | (iii) tetrahedral                        |
| (d) 6, $d^2sp^3$                              | (iv) square planar                       |
- Select the correct option :  
(1) (a)-(iii) (b)-(i) (c)-(iv) (d)-(ii)  
(2) (a)-(ii) (b)-(iii) (c)-(iv) (d)-(i)  
(3) (a)-(iii) (b)-(iv) (c)-(i) (d)-(ii)  
(4) (a)-(iv) (b)-(i) (c)-(ii) (d)-(iii)  
**Answer (3)**





## States of Matter: Gases and Liquids – C1105

2017

35. A gas is allowed to expand in a well insulated container against a constant external pressure of 2.5 atm from an initial volume of 2.50 L to a final volume of 4.50 L. The change in internal energy  $\Delta U$  of the gas in joules will be
- (1) +505 J                      (2) 1136.25 J  
(3) -505 J                      (4) -505 J

Answer:(4)

2018

36. The correction factor 'a' to the ideal gas equation corresponds to
- (1) electric field present between the gas molecules  
(2) volume of the gas molecules  
(3) density of the gas molecules  
(4) forces of attraction between the gas molecules

Answer: (4)

37. Given van der Waals constant for  $NH_3$ ,  $H_2$ ,  $O_2$  and  $CO_2$  are respectively 4.17, 0.244, 1.36 and 3.59, which one of the following gases is most easily liquefied?
- (1)  $O_2$                       (2)  $H_2$   
(3)  $NH_3$                       (4)  $CO_2$

Answer: (3)

2019

38. A gas at 350 K and 15 bar has molar volume 20 percent smaller than that for an ideal gas under the same conditions. The correct option about the gas and its compressibility factor (Z) in:
- (1)  $Z > 1$  and attractive forces are dominant  
(2)  $Z > 1$  and repulsive forces are dominant  
(3)  $Z < 1$  and attractive forces are dominant  
(4)  $Z < 1$  and repulsive forces are dominant

Answer: (3)

2020

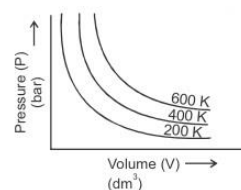
39. The minimum pressure required to compress 600 dm<sup>3</sup> of a gas at 1 bar to 150 dm<sup>3</sup> at 40°C is
- (1) 2.5 bar                      (2) 4.0 bar  
(3) 0.2 bar                      (4) 1.0 bar

Answer:(2)

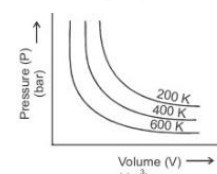
2021

40. Choose the correct option for graphical representation of Boyle's law, which shows a graph of pressure vs. volume of a gas at different temperatures:

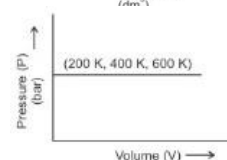
(1)



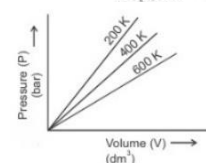
(2)



(3)



(4)



Answer: (1)

41. Choose the correct option for the total pressure (in atm.) in a mixture of 4 g  $O_2$  and 2 g  $H_2$  confined in a total volume of one litre at 0°C is: [Given  $R = 0.082 \text{ L atm mol}^{-1}\text{K}^{-1}$ ,  $T = 273 \text{ K}$ ]
- (1) 26.02                      (2) 2.518  
(3) 2.602                      (4) 25.18

Answer: (4)



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2022

42. Which one is not correct mathematical equation for Dalton's Law of partial pressure? Here  $p$  = total pressure of gaseous mixture

(1)  $p_i = X_i p$ , where

$p_i$  = partial pressure of  $i^{\text{th}}$  gas

$X_i$  = mole fraction of  $i^{\text{th}}$  gas in gaseous mixture

(2)  $p_i = X_i p_i^o$ , where  $X_i$  = mole fraction of  $i^{\text{th}}$  gas in gaseous mixture  $p_i^o$  = pressure of  $i^{\text{th}}$  in pure state

(3)  $p = p_1 + p_2 + p_3$

(4)  $p = n_1 \frac{RT}{V} + n_2 \frac{RT}{V} + n_3 \frac{RT}{V}$

Answer:(2)

43. A 10.0 L flask contains 64 g of oxygen at 27°C. (Assume O<sub>2</sub> gas is behaving ideally). The pressure inside the flask in bar is (Given  $R = 0.0831 \text{ L bar K}^{-1} \text{ mol}^{-1}$ )

(1) 49.8

(2) 4.9

(3) 2.5

(4) 498.6

Answer:(2)

44. Copper crystallises in fcc unit cell with cell edge length of  $3.608 \times 10^{-8} \text{ cm}$ . The density of copper is  $8.92 \text{ g cm}^{-3}$ . Calculate the atomic mass of copper.

(1) 60 u

(2) 65 u

(3) 63.1 u

(4) 31.55 u

Answer:(3)

## Thermodynamics – C1106

2017

45. A 20 litre container at 400 K contains CO<sub>2</sub>(g) at pressure 0.4 atm and an excess of SrO (neglect the volume of solid SrO). The volume of the container is now decreased by moving the movable piston fitted in the container. The maximum volume of the container, when pressure of CO<sub>2</sub> attains its maximum value, will

be (Given that:  $\text{SrCO}_3(\text{s}) \rightleftharpoons \text{SrO}(\text{s}) + \text{CO}_2(\text{g})$ .  $K_p = 1.6 \text{ atm}$ )

(1) 2 litre

(2) 5 litre

(3) 10 litre

(4) 4 litre

Answer:(2)

46. For a given reaction,  $\Delta H = 35.5 \text{ kJ mol}^{-1}$  and  $\Delta S = 83.6 \text{ JK}^{-1} \text{ mol}^{-1}$ . The reaction is spontaneous at : (Assume that  $\Delta H$  and  $\Delta S$  do not vary with temperature)

(1)  $T > 298 \text{ K}$

(2)  $T < 425 \text{ K}$

(3)  $T > 425 \text{ K}$

(4) All temperatures

Answer: (3)

47. The bond dissociation energies of  $X_2$ ,  $Y_2$  and  $XY$  are in the ratio of 1 : 0.5 : 1.  $\Delta H$  for the formation of  $XY$  is  $-200 \text{ kJ mol}^{-1}$ . The bond dissociation energy of  $X_2$  will be

(1) 800  $\text{kJ mol}^{-1}$

(2) 100  $\text{kJ mol}^{-1}$

(3) 200  $\text{kJ mol}^{-1}$

(4) 400  $\text{kJ mol}^{-1}$

Answer: (3)

2019

48. Under isothermal condition, a gas at 300 K expands from 0.1 L to 0.25 L against a constant external pressure of 2 bar. The work done by the gas is: [Given that 1 L bar = 100 J]

(1) -30 J

(2) 5 kJ

(3) 25 J

(4) 30 J

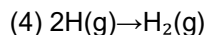
Answer: (1)

49. In which case change in entropy is negative?

(1) Evaporation of water

(2) Expansion of a gas at constant temperature

(3) Sublimation of solid to gas



Answer: (4)

2020

50. At standard conditions, if the change in the enthalpy for the following reaction is  $-109 \text{ kJ mol}^{-1}$ .  $\text{H}_2(\text{g}) + \text{Br}_2(\text{g}) \rightarrow 2\text{HBr}(\text{g})$

Given that bond energy of  $\text{H}_2$  and  $\text{Br}_2$  is  $435 \text{ kJ mol}^{-1}$  and  $192 \text{ kJ mol}^{-1}$ , respectively, what is the bond energy (in  $\text{kJ mol}^{-1}$ ) of  $\text{HBr}$ ?

- (1) 259 (2) 368  
(3) 736 (4) 518

Answer:(2)

51. If for a certain reaction  $\Delta_r H$  is  $30 \text{ kJ mol}^{-1}$  at  $450 \text{ K}$ , the value of  $\Delta_r S$  (in  $\text{JK}^{-1} \text{ mol}^{-1}$ ) for which the same reaction will be spontaneous at the same temperature is

- (1)  $-70$  (2)  $70$   
(3)  $-33$  (4)  $33$

Answer:(2)

2021

52. Which one among the following is the correct option for right relationship between  $C_p$  and  $C_v$  for one mole of ideal gas?

- (1)  $C_v = RC_p$  (2)  $C_p + C_v = R$   
(3)  $C_p - C_v = R$  (4)  $C_p = RC_v$

Answer: (3)

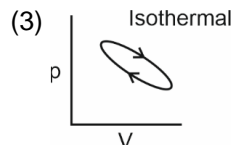
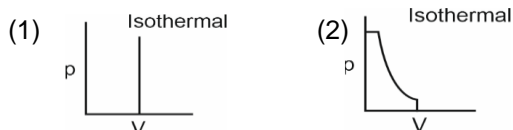
53. For irreversible expansion of an ideal gas under isothermal condition, the correct option is:

- (1)  $\Delta U \neq 0, \Delta S_{\text{total}} = 0$   
(2)  $\Delta U = 0, \Delta S_{\text{total}} = 0$   
(3)  $\Delta U \neq 0, \Delta S_{\text{total}} \neq 0$   
(4)  $\Delta U = 0, \Delta S_{\text{total}} \neq 0$

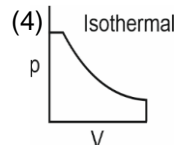
Answer: (2)

2022

54. Which of the following p-V curve represents maximum work done?



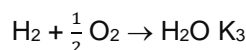
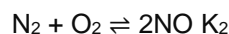
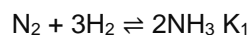
Answer: (4)



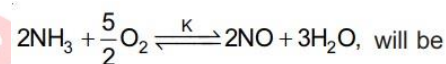
EQUILIBRIUM – C1107

2017

55. The equilibrium constants of the following are:



The equilibrium constant (K) of the reaction



- (1)  $K_2^3 K_3 / K_1$  (2)  $K_1 K_3^3 / K_2$   
(3)  $K_2 K_3^3 / K_1$  (4)  $K_2 K_3 / K_1$

Answer:(3)

56. Concentration of the  $\text{Ag}^+$  ions in a saturated solution of  $\text{Ag}_2\text{C}_2\text{O}_4$  is  $2.2 \times 10^{-4} \text{ mol L}^{-1}$ .

Solubility product of  $\text{Ag}_2\text{C}_2\text{O}_4$  is

- (1)  $5.3 \times 10^{-12}$  (2)  $2.42 \times 10^{-8}$   
(3)  $2.66 \times 10^{-12}$  (4)  $4.5 \times 10^{-11}$

Answer:(1)

57. Which one of the following statements is not correct?

- (1) Coenzymes increase the catalytic activity of enzyme  
(2) Catalyst does not initiate any reaction  
(3) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium  
(4) Enzymes catalyse mainly bio-chemical reactions

Answer:(3)



# VETRI NEET GATEWAY

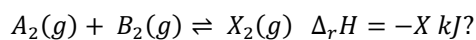
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2018

58. Which one of the following conditions will favour maximum formation of the product in the reaction,



- (1) High temperature and high pressure
- (2) Low temperature and low pressure
- (3) Low temperature and high pressure
- (4) High temperature and low pressure

Answer: (1)

59. The solubility of  $\text{BaSO}_4$  in water is  $2.42 \times 10^{-3} \text{ g L}^{-1}$  at 298 K. The value of its solubility product ( $K_{sp}$ ) will be (Given molar mass of  $\text{BaSO}_4 = 233 \text{ g mol}^{-1}$ )

- (1)  $1.08 \times 10^{-14} \text{ mol}^2 \text{ L}^{-2}$
- (2)  $1.08 \times 10^{-12} \text{ mol}^2 \text{ L}^{-2}$
- (3)  $1.08 \times 10^{-10} \text{ mol}^2 \text{ L}^{-2}$
- (4)  $1.08 \times 10^{-8} \text{ mol}^2 \text{ L}^{-2}$

Answer: (1)

60. pH of a saturated solution of  $\text{Ca(OH)}_2$  is 9. The solubility product ( $K_{sp}$ ) of  $\text{Ca(OH)}_2$  is :

- (1)  $0.5 \times 10^{-15}$
- (2)  $0.25 \times 10^{-10}$
- (3)  $0.125 \times 10^{-15}$
- (4)  $0.5 \times 10^{-10}$

Answer: (1)

61. Conjugate base for Bronsted acids  $\text{H}_2\text{O}$  and  $\text{HF}$  are:

- (1)  $\text{OH}^-$  and  $\text{H}_2\text{F}^+$ , respectively
- (2)  $\text{H}_3\text{O}^+$  and  $\text{F}^-$ , respectively
- (3)  $\text{OH}^-$  and  $\text{F}^-$ , respectively
- (4)  $\text{H}_3\text{O}^+$  and  $\text{H}_2\text{F}^+$ , respectively

Answer: (3)

62. Which will make basic buffer?

- (1) 50 mL of 0.1 M  $\text{NaOH}$  + 25 mL of 0.1 M  $\text{CH}_3\text{COOH}$
- (2) 100 mL of 0.1 M  $\text{CH}_3\text{COOH}$  + 100 mL of 0.1 M  $\text{NaOH}$
- (3) 100 mL of 0.1 M  $\text{HCl}$  + 200 mL of 0.1 M  $\text{NH}_4\text{OH}$
- (4) 100 mL of 0.1 M  $\text{HCl}$  + 100 mL of 0.1 M  $\text{NaOH}$

Answer: (3)

2020

63. The solubility product for a salt of the type  $\text{AB}$  is  $4 \times 10^{-8}$ . What is the molarity of its standard solution?

- (1)  $4 \times 10^{-4} \text{ mol/L}$
- (2)  $2 \times 10^{-4} \text{ mol/L}$
- (3)  $16 \times 10^{-16} \text{ mol/L}$
- (4)  $2 \times 10^{-16} \text{ mol/L}$

Answer: (2)

64. The  $\text{pK}_b$  of dimethylamine and  $\text{pK}_a$  of acetic acid are 3.27 and 4.77 respectively at T (K). The correct option for the pH of dimethylammonium acetate solution is:

- (1) 6.25
- (2) 8.50
- (3) 5.50
- (4) 7.75

Answer: (4)

2022

65. The pH of the solution containing 50 mL each of 0.10 M sodium acetate and 0.01 M acetic acid is [Given  $\text{pK}_a$  of  $\text{CH}_3\text{COOH} = 4.57$ ]

- (1) 4.57
- (2) 2.57
- (3) 5.57
- (4) 3.57

Answer: (3)

66.  $3\text{O}_2(g) \rightleftharpoons 2\text{O}_3(g)$

for the above reaction at 298 K,  $K_C$  is found to be  $3.0 \times 10^{-59}$ . If the concentration of  $\text{O}_2$  at equilibrium is 0.040 M then concentration of  $\text{O}_3$  in M is

- (1)  $2.4 \times 10^{31}$
- (2)  $1.2 \times 10^{21}$
- (3)  $4.38 \times 10^{-32}$
- (4)  $1.9 \times 10^{-63}$

Answer: (3)





# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

## Redox REactions – C1108

2017

67. In the electrochemical cell  $Zn|ZnSO_4(0.01M)||CuSO_4(1.0M)|Cu$ , the emf of this Daniel cell is  $E_1$ . When the concentration of  $ZnSO_4$  is changed to 1.0 M and that of  $CuSO_4$  changed to 0.01 M, the emf changes to  $E_2$ . From the following, which one is the relationship between  $E_1$  and  $E_2$ ? (Given,  $\frac{RT}{F} = 0.059$ )

- (1)  $E_2 = 0 \neq E_1$                       (2)  $E_1 = E_2$   
(3)  $E_1 < E_2$                             (4)  $E_1 > E_2$

Answer: (4)

2018

68. The correct order of N-compounds in its decreasing order of oxidation states is
- (1)  $HNO_3, NH_4Cl, NO, N_2$   
(2)  $HNO_3, NO, NH_4Cl, N_2$   
(3)  $HNO_3, NO, N_2, NH_4Cl$   
(4)  $NH_4Cl, N_2, NO, HNO_3$

Answer : (1)

69. For the redox reaction  $MnO_4^- + C_2O_4^{2-} + H^+ \rightarrow Mn^{2+} + CO_2 + H_2O$  the correct coefficients of the reactants for the balanced equation are

- | $MnO_4^-$ | $C_2O_4^{2-}$ | $H^+$ |
|-----------|---------------|-------|
| (1) 2     | 16            | 5     |
| (2) 2     | 5             | 16    |
| (3) 16    | 5             | 2     |
| (4) 5     | 16            | 3     |

Answer: (2)

2020

70. The oxidation number of the underlined atom in the following species
- (1)  $HAuCl_4$  is + 3                      (2)  $Cu_2O$  is -1  
(3)  $ClO_3^-$  is +5                        (4)  $K_2Cr_2O_7$  is + 6

Answer:(2)

71. Identify the reaction from following having top position in EMF series (Std. red. potential) according to their electrode potential at 298 K.
- (1)  $K^+ + 1e^- \rightarrow K_{(s)}$   
(2)  $Mg^{2+} + 2e^- \rightarrow Mg_{(s)}$   
(3)  $Fe^{2+} + 2e^- \rightarrow Fe_{(s)}$   
(4)  $Au^{3+} + 3e^- \rightarrow Au_{(s)}$

Answer:(4)

2021

72. Which of the following reactions is the metal displacement reaction? Choose the right option.
- (1)  $2Pb(NO_3)_2 \rightarrow 2PbO + 4NO_2 + O_2 \uparrow$   
(2)  $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$   
(3)  $Cr_2O_3 + 2Al \xrightarrow{\Delta} Al_2O_3 + 2Cr$   
(4)  $Fe + 2HCl \rightarrow FeCl_2 + H_2 \uparrow$

Answer: (3)

2022

73. Identify the incorrect statement from the following
- (1) Ionisation enthalpy of alkali metals decreases from top to bottom in the group.  
(2) Lithium is the strongest reducing agent among the alkali metals.  
(3) Alkali metals react with water to form their hydroxides.  
(4) The oxidation number of K in  $KO_2$  is +4.

Answer:(4)

## Hydrogen – C1109

2021

74. Tritium, a radioactive isotope of hydrogen, emits which of the following particles?
- (1) Neutron (n)                            (2) Beta ( $\beta^-$ )  
(3) Alpha ( $\alpha$ )                            (4) Gamma ( $\gamma$ )

Answer: (2)



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

2022

2021

75. Match List-I with List-II.

List – I	List – II
(Hydrides)	(Nature)
(a) $MgH_2$	(i) Electron precise
(b) $GeH_4$	(ii) Electron deficient
(c) $B_2H_6$	(iii) Electron rich
(d) HF	(iv) Ionic

Choose the correct answer from the options given below

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

Answer:(3)

**s- Block Element (Alkali and Alkaline earth metals) – C1110**

2017

2022

76. Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field?

- (1) Li (2) Na  
(3) K (4) Rb

Answer:(1)

2019

77. Which of the following is an amphoteric hydroxide?

- (1)  $Sr(OH)_2$  (2)  $Ca(OH)_2$   
(3)  $Mg(OH)_2$  (4)  $Be(OH)_2$

Answer: (4)

2020

78. What is the role of gypsum,  $CaSO_4 \cdot 2H_2O$  in setting of cement? Identify the correct option from the following :

- (1) to slow down the setting process  
(2) to fasten the setting process  
(3) to provide water molecules for hydration process  
(4) to help to remove water molecules

Answer: (1)

79. The structures of beryllium chloride in solid state and vapour phase, are:

- (1) Chain in both  
(2) Chain and dimer, respectively  
(3) Linear in both  
(4) Dimer and Linear, respectively

Answer: (2)

80. Among the following alkaline earth metal halides, one which is covalent and soluble in organic solvents is:

- (1) Beryllium chloride  
(2) Calcium chloride  
(3) Strontium chloride  
(4) Magnesium chloride

Answer: (1)

81. Match List-I with List-II

List-I List-II

- (a) Li (i) absorbent for carbon dioxide  
(b) Na (ii) electrochemical cells  
(c) KOH (iii) coolant in fast breeder reactors  
(d) Cs (iv) photoelectric cell

Choose the correct answer from the options given below :

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

Answer:(2)

**SOME p- Block Elements – C1111**

2017

82. Which of the following is a sink for  $CO_2$ ?

- (1) Plants  
(2) Haemoglobin  
(3) Micro-organisms present in the soil  
(4) Oceans

Answer:(3)

83. The species, having bond angles of  $120^\circ$  is

- (1)  $\text{BCl}_3$  (2)  $\text{PH}_3$   
(3)  $\text{ClF}_3$  (4)  $\text{NCl}_3$

Answer: (1)

2018

84. The correct order of atomic radii in group 13 elements is

- (1)  $B < Ga < Al < Tl < In$   
(2)  $B < Al < Ga < In < Tl$   
(3)  $B < Al < In < Ga < Tl$   
(4)  $B < Ga < Al < In < Tl$

Answer: (3)

85. Which one of the following elements is unable to form  $\text{MF}_6^{3-}$  ion?

- (1) B (2) Al  
(3) Ga (4) In

Answer: (4)

2020

86. Which one of the following reactions does not come under hydrolysis type reaction?

- (1)  $\text{P}_4\text{O}_{10(s)} + 6\text{H}_2\text{O(l)} \rightarrow 4\text{H}_3\text{PO}_{4(aq)}$   
(2)  $\text{SiCl}_{4(l)} + 2\text{H}_2\text{O(l)} \rightarrow \text{SiO}_{2(s)} + 4\text{HCl}_{(aq)}$   
(3)  $\text{Li}_3\text{N(s)} + 3\text{H}_2\text{O(l)} \rightarrow \text{NH}_3(g) + 3\text{LiOH}_{(aq)}$   
(4)  $2\text{F}_2(g) + 2\text{H}_2\text{O(l)} \rightarrow 4\text{HF}_{(aq)} + \text{O}_2(g)$

Answer: (4)

2022

87. Choose the correct statement:

- (1) Diamond is  $\text{sp}^3$  hybridised and graphite is  $\text{sp}^2$  hybridized.  
(2) Both diamond and graphite are used as dry lubricants.  
(3) Diamond and graphite have two dimensional network.  
(4) Diamond is covalent and graphite is ionic.

Answer: (1)

Organic Chemistry - Some Basic Principles and techniques – C1112

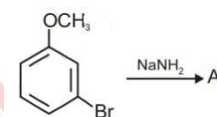
2017

88. The most suitable method of separation of 1 : 1 mixture of ortho and para-nitrophenols is

- (1) Steam distillation  
(2) Sublimation  
(3) Chromatography  
(4) Crystallisation

Answer: (1)

89. Identify A and predict the type of reaction



(1) c1ccccc1 and cine substitution reaction

(2) COc1ccc(N)cc1 and substitution reaction

(3) COc1ccccc1N and elimination addition reaction

(4) COc1ccccc1Br and cine substitution reaction

Answer: (2)

90. Match List-I with List-II.

List – I  
(Products formed)

List – II  
(Reaction of carbonyl compound with)

- (a) Cyanohydrin  
(b) Acetal  
(c) Schiff's base  
(d) Oxime

- (i)  $\text{NH}_2\text{OH}$   
(ii)  $\text{RNH}_2$   
(iii) alcohol  
(iv)  $\text{HCN}$



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

Choose the correct answer from the options given below

2020

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

Answer: (4)

91. Which of the following statements is *not* true for halogens?

- (1) All but fluorine show positive oxidation states.  
(2) All are oxidizing agents.  
(3) All form monobasic oxyacids.  
(4) Chlorine has the highest electron-gain enthalpy.

Answer: (4)

2019

92. The number of sigma ( $\sigma$ ) and pi ( $\pi$ ) bonds in pent-2-en-4-yne is :

- (1)  $10\sigma$  bonds and  $3\pi$  bonds  
(2)  $8\sigma$  bonds and  $5\pi$  bonds  
(3)  $11\sigma$  bonds and  $2\pi$  bonds  
(4)  $13\sigma$  bonds and no  $\pi$  bonds

Answer: (1)

93. The compound that is most difficult to protonate is:

- (1)
- (2)
- (3)
- (4)

Answer: (4)

94. A liquid compound (x) can be purified by steam distillation only if it is

- (1) Not steam volatile, immiscible with water  
(2) Steam volatile, immiscible with water  
(3) Not steam volatile, miscible with water  
(4) Steam volatile, miscible with water

Answer: (2)

2021

95. The compound which shows metamerism is:

- (1)  $C_4H_{10}O$  (2)  $C_5H_{12}$   
(3)  $C_3H_8O$  (4)  $C_3H_6O$

Answer: (1)

96. An organic compound contains 78% (by wt.) carbon and remaining percentage of hydrogen. The right option for the empirical formula of this compound is :

[Atomic wt. of C is 12, H is 1]

- (1)  $CH_4$  (2) CH  
(3)  $CH_2$  (4)  $CH_3$

Answer: (4)

97. The correct structure of 2, 6-Dimethyl-dec-4-ene is

2, 6-டைமெத்தில்-டெக்-4-என் -ன் சரியான அமைப்பு:

- (1)
- (2)
- (3)
- (4)

Answer (2)



2022

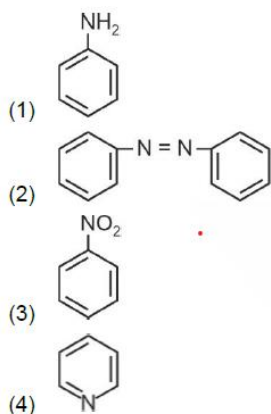
HYDROCARBONS – C1113

2017

98. The incorrect statement regarding chirality is
- (1) Enantiomers are superimposable mirror images on each other
  - (2) A racemic mixture shows zero optical rotation
  - (3)  $S_N1$  reaction yields 1 : 1 mixture of both enantiomers
  - (4) The product obtained by  $S_N2$  reaction of haloalkane having chirality at the reactive site shows inversion of configuration

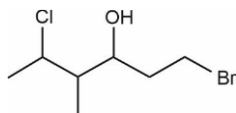
Answer:(1)

99. The Kjeldahl's method for the estimation of nitrogen can be used to estimate the amount of nitrogen in which one of the following compounds?



Answer: (1)

100. The correct IUPAC name of the following compound is



- (1) 1-bromo-4-methyl-5-chlorohexan-3-ol
- (2) 6-bromo-4-methyl-2-chlorohexan-4-ol
- (3) 1-bromo-5-chloro-4-methylhexan-3-ol
- (4) 6-bromo-2-chloro-4-methylhexan-4-ol

Answer:(3)

101. Which one is the correct order of acidity?

- (1)  $\text{CH}_3 - \text{CH}_3 > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH} \equiv \text{CH}$
- (2)  $\text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{CH} \equiv \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH} \equiv \text{CH}$
- (3)  $\text{CH} \equiv \text{CH} > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{CH}_3$
- (4)  $\text{CH} \equiv \text{CH} > \text{CH}_2 = \text{CH}_2 > \text{CH}_3 - \text{C} \equiv \text{CH} > \text{CH}_3 - \text{CH}_3$

Answer: (3)

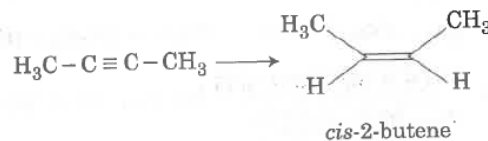
102. With respect to the conformers of ethane, which of the following statements is true?

- (1) Both bond angles and bond length remains same
- (2) Both angle remains same but bond length changes
- (3) Bond angle changes but bond length remains same
- (4) Both bond angle and bond length change

Answer: (1)

2019

103. The most suitable reagent for the following conversion, is:



- (1) Na/liquid  $\text{NH}_3$
- (2)  $\text{H}_2$ , Pd/C, quinoline
- (3) Zn/HCl
- (4)  $\text{Hg}^{2+}/\text{H}^+$ ,  $\text{H}_2\text{O}$

Answer: (2)

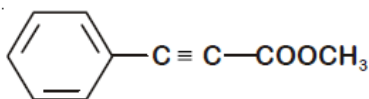
2020

104. Which of the following is a free radical substitution reaction?

- (1) Propene with  $\text{HBr}/(\text{C}_6\text{H}_5\text{COO})_2$
- (2) Benzene with  $\text{Br}_2/\text{AlCl}_3$
- (3) Acetylene with HBr
- (4) Methane with  $\text{Br}_2/h\nu$

Answer:(4)

105. How many (i)  $sp^2$  hybridised carbon atoms and (ii)  $\pi$  bonds are present in the following compound?



- (1) 8, 5  
(2) 7, 5  
(3) 8, 6  
(4) 7, 6

Answer: (4)

2021

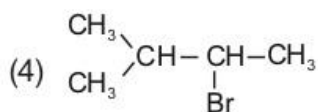
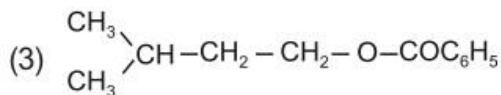
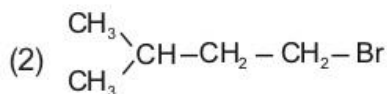
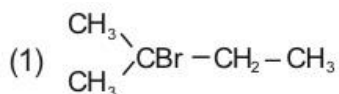
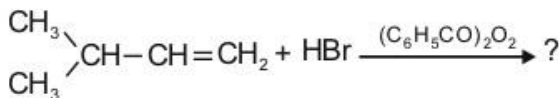
106. Dihedral angle of least stable conformer of ethane is:

- (1)  $0^\circ$   
(2)  $120^\circ$   
(3)  $180^\circ$   
(4)  $60^\circ$

Answer: (1)

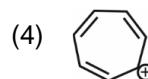
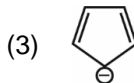
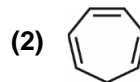
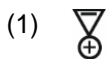
107. The major product of the following chemical reaction is:

கீழ்க்கண்ட வேதிவினையில் உருவாகும் மிகுதியான விளைபொருள்:



Answer (2)

108. Which compound amongst the following is not an aromatic compound?



Answer: (2)

109. Compound X on reaction with  $\text{O}_3$  followed by  $\text{Zn}/\text{H}_2\text{O}$  gives formaldehyde and 2-methyl propanal as products. The compound X is

- (1) 2-Methylbut-2-ene  
(2) Pent-2-ene  
(3) 3-Methylbut-1-ene  
(4) 2-Methylbut-1-ene

Answer: (3)

Environmental Chemistry – C1114

2018

110. Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and human activity?

- (1)  $\text{N}_2\text{O}$   
(2)  $\text{NO}_2$   
(3)  $\text{N}_2\text{O}_5$   
(4)  $\text{NO}$

Answer: (1)

2019

111. Among the following, the one that is not a green house gas is:

- (1) Nitrous oxide  
(2) methane  
(3) ozone  
(4) sulphur dioxide

Answer: (4)



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

2020

112. Which of the following statement is NOT true about acid rain?

- (1) Its pH is less than 5.6
- (2) It is due to reaction of  $\text{SO}_2$ ,  $\text{NO}_2$  and  $\text{CO}_2$  with rain water
- (3) Causes no damage to monuments like Taj Mahal
- (4) It is harmful for plants

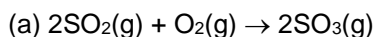
Answer:(3)

2021

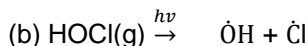
113. Match List – I with List – II.

List – I

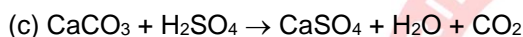
List – II



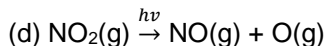
(i) Acid rain



(ii) Smog



(iii) Ozone depletion



(iv) Tropospheric pollution

Choose the correct answer from the options given below:

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

Answer: (4)

2022

114. The pollution due to oxides of sulphur gets enhanced due to the presence of:

- (a) particular matter
- (b) ozone
- (c) hydrocarbons
- (d) hydrogen peroxide

Choose the most appropriate answer from the options given below:

- (1) (b), (c), (d) only
- (2) (a), (c), (d) only
- (3) (a), (d) only
- (4) (a), (b), (d) only

Answer:(4)

Solid State – C1201

2017

115. Which is the incorrect statement?

- (1) Frenkel defect is favoured in those ionic compounds in which sizes of cation and anions are almost equal
- (2)  $\text{FeO}_{0.98}$  has non stoichiometric metal deficiency defect
- (3) Density decreases in case of crystals with Schottky's defect
- (4)  $\text{NaCl}(\text{s})$  is insulator, silicon is semiconductor, silver is conductor, quartz is piezo electric crystal

Answer: (1 & 2)\*

2018

116. Iron exhibits bcc structure at room temperature. Above  $900^\circ\text{C}$ , it transforms to fcc structure. The ratio of density of iron at room temperature to that at  $900^\circ\text{C}$  (assuming molar mass and atomic radii of iron remains constant with temperature)

- (1)  $\frac{3\sqrt{3}}{4\sqrt{2}}$
- (2)  $\frac{4\sqrt{3}}{3\sqrt{2}}$
- (3)  $\frac{\sqrt{3}}{\sqrt{2}}$
- (4)  $\frac{1}{2}$

Answer: (1)

2019

117. A compound is formed by cation C and anion A. The anions form hexagonal close packed (hcp) lattice and the cations occupy 75% of octahedral voids. The formula of the compound is:

- (1)  $\text{C}_2\text{A}_3$
- (2)  $\text{C}_3\text{A}_2$
- (3)  $\text{C}_3\text{A}_4$
- (4)  $\text{C}_4\text{A}_3$

Answer: (3)

2020

118. Which one of the following compounds shows both, Frenkel as well as Schottky defects?

- (1)  $\text{ZnS}$
- (2)  $\text{AgBr}$
- (3)  $\text{AgI}$
- (4)  $\text{NaCl}$

Answer:(2)



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

2021

119. The correct option for the number of body centred unit cells in all 14 types of Bravais lattice unit cells

(1) 3 (2) 7  
(3) 5 (4) 2

Answer: (1)

120. Right option for the number of tetrahedral and octahedral voids in hexagonal primitive unit cell are :

(1) 12, 6 (2) 8, 4  
(3) 6, 12 (4) 2, 1

Answer: (1)

2022

121. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

**Assertion (A):** In a particular point defect, an ionic solid is electrically neutral, even if few of its cations are missing from its unit cells.

**Reason (R):**

In an ionic solid, Frenkel defect arises due to dislocation of cation from its lattice site to interstitial site, maintaining overall electrical neutrality.

In the light of the above statements, choose the most appropriate answer from the options given below:

- (1) (A) is correct but (R) is not correct  
(2) (A) is not correct but (R) is correct  
(3) Both (A) and (R) are correct and (R) is the correct explanation of (A)  
(4) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

Answer: (4)

Electrochemistry – C1203

2017

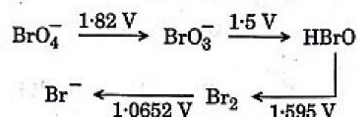
122. The correct order of the stoichiometries of AgCl formed when AgNO<sub>3</sub> in excess is treated with the complexes: CoCl<sub>3</sub>·6NH<sub>3</sub>, CoCl<sub>3</sub>·5NH<sub>3</sub>, CoCl<sub>3</sub>·4NH<sub>3</sub> respectively is

(1) 2 AgCl, 3 AgCl, 1 AgCl  
(2) 1 AgCl, 3 AgCl, 2 AgCl  
(3) 3 AgCl, 1 AgCl, 2 AgCl  
(4) 3 AgCl, 2 AgCl, 1 AgCl

Answer: (4)

2018

123. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below:



Then the species undergoing disproportionation is

- (1) Br<sub>2</sub> (2) BrO<sub>4</sub><sup>-</sup>  
(3) BrO<sub>3</sub><sup>-</sup> (4) HBrO

Answer: (4)

2019

124. For the cell reaction  
 $2\text{Fe}^{3+}(\text{aq}) + 2\text{I}^{-}(\text{aq}) \rightarrow 2\text{Fe}^{2+}(\text{aq}) + \text{I}_2(\text{aq})$   
 $E_{\text{cell}}^{\ominus} = 0.24 \text{ V}$  at 298 K. The standard Gibbs energy ( $\Delta_r G^{\ominus}$ ) of the cell reaction is :

[Given that Faraday constant  $F = 96500 \text{ C mol}^{-1}$ ]  
(1) - 46.32 kJ mol<sup>-1</sup> (2) - 23.16 kJ mol<sup>-1</sup>  
(3) 46.32 kJ mol<sup>-1</sup> (4) 23.16 kJ mol<sup>-1</sup>

Answer: (1)

125. For a cell involving one electron  $E_{\text{cell}}^{\ominus} = 0.59 \text{ V}$  at 299 K, the equilibrium constant for the cell reaction is:

[Given that  $\frac{2.303 RT}{F} = 0.059 \text{ V}$  at  $T = 298 \text{ K}$ ]

(1)  $1.0 \times 10^2$  (2)  $1.0 \times 10^5$   
(3)  $1.0 \times 10^{10}$  (4)  $1.0 \times 10^{30}$

Answer: (3)



2020

2022

126. In a typical fuel cell, the reactant (R) and product (P) are

- (1)  $R = H_{2(g)} \cdot N_{2(g)} ; P = NH_{3(aq)}$
- (2)  $R = H_{2(g)} \cdot O_{2(g)} ; P = H_2O_{2(l)}$
- (3)  $R = H_{2(g)} \cdot O_{2(g)} ; P = H_2O_{(l)}$
- (4)  $R = H_{2(g)} \cdot O_{2(g)} \cdot Cl_{2(g)} ; P = HClO_{4(aq)}$

Answer:(3)

2021

127. The molar conductance of NaCl, HCl and  $CH_3COONa$  at infinite dilution are 126.45, 426.16 and  $91.0 \text{ S cm}^2 \text{ mol}^{-1}$  respectively. The molar conductance of  $CH_3COOH$  at infinite dilution is. Choose the right option for your answer.

- (1)  $540.48 \text{ S cm}^2 \text{ mol}^{-1}$
- (2)  $201.28 \text{ S cm}^2 \text{ mol}^{-1}$
- (3)  $390.71 \text{ S cm}^2 \text{ mol}^{-1}$
- (4)  $698.28 \text{ S cm}^2 \text{ mol}^{-1}$

Answer: (3)

128. The molar conductivity of 0.007 M acetic acid is  $20 \text{ S cm}^2 \text{ mol}^{-1}$ . What is the dissociation constant of acetic acid? Choose the correct option.

$$\left[ \begin{array}{l} \Lambda_{H^+}^\circ = 350 \text{ S cm}^2 \text{ mol}^{-1} \\ \Lambda_{CH_3COO^-}^\circ = 50 \text{ S cm}^2 \text{ mol}^{-1} \end{array} \right]$$

- (1)  $2.50 \times 10^{-5} \text{ mol L}^{-1}$
- (2)  $1.75 \times 10^{-4} \text{ mol L}^{-1}$
- (3)  $2.50 \times 10^{-4} \text{ mol L}^{-1}$
- (4)  $1.75 \times 10^{-5} \text{ mol L}^{-1}$

Answer: (4)

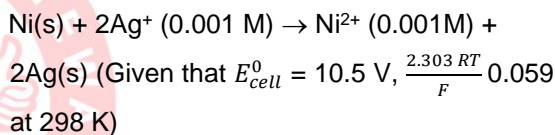
129. At 298 K, the standard electrode potentials of  $Cu^{2+} / Cu$ ,  $Zn^{2+} / Zn$ ,  $Fe^{2+} / Fe$  and  $Ag^+ / Ag$  are 0.34 V,  $-0.76 \text{ V}$ ,  $-0.44 \text{ V}$  and  $0.80 \text{ V}$ , respectively.

On the basis of standard electrode potential, predict which of the following reaction cannot occur?

- (1)  $FeSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Fe(s)$
- (2)  $2CuSO_4(aq) + 2Ag(s) \rightarrow 2Cu(s) + Ag_2SO_4(aq)$
- (3)  $CuSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Cu(s)$
- (4)  $CuSO_4(aq) + Fe(s) \rightarrow FeSO_4(aq) + Cu(s)$

Answer:(2)

130. Find the emf of the cell in which the following reaction takes place at 298 K



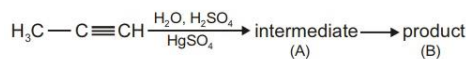
- (1) 0.9615 V
- (2) 1.05 V
- (3) 1.0385 V
- (4) 1.385 V

Answer (NA)

## SOLUTIONS – C1202

2017

131. Predict the correct intermediate and product in the following reaction:



- (1) A:  $H_3C-C(OH)=CH_2$     B:  $H_3C-C(=O)-CH_3$
- (2) A:  $H_3C-C(SO_4)=CH_2$     B:  $H_3C-C(=O)-CH_3$
- (3) A:  $H_3C-C(OH)=CH_2$     B:  $H_3C-C(SO_4)=CH_2$
- (4) A:  $H_3C-C(=O)-CH_3$     B:  $H_3C-C \equiv CH$

Answer: (1)



# VETRI NEET GATEWAY

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- 132.** If molality of the dilute solution is doubled, the value of molal depression constant ( $K_f$ ) will be  
(1) Unchanged (2) Doubled  
(3) Halved (4) Tripled  
**Answer: (1)**
- 133.** Which of the following is dependent on temperature?  
(1) Weight percentage (2) Molality  
(3) Molarity (4) Mole fraction  
**Answer: (3)**
- 2018**
- 134.** Following solutions were prepared by mixing different volumes of  $\text{NaOH}$  and  $\text{HCl}$  of different concentrations:  
a.  $60 \text{ mL } \frac{M}{10} \text{ HCl} + 40 \text{ mL } \frac{M}{10} \text{ NaOH}$   
b.  $55 \text{ mL } \frac{M}{10} \text{ HCl} + 45 \text{ mL } \frac{M}{10} \text{ NaOH}$   
c.  $75 \text{ mL } \frac{M}{5} \text{ HCl} + 25 \text{ mL } \frac{M}{5} \text{ NaOH}$   
d.  $100 \text{ mL } \frac{M}{10} \text{ HCl} + 100 \text{ mL } \frac{M}{10} \text{ NaOH}$   
 $\text{pH}$  of which one of them will be equal to 1?  
(1) d (2) a (3) b (4) c  
**Answer: (3)**
- 2019**
- 135.** The mixture that forms maximum boiling azeotrope is:  
(1) Water + Nitric acid  
(2) Ethanol + Water  
(3) Acetone + Carbon disulphide  
(4) Heptane + Octane  
**Answer: (1)**
- 136.** For an ideal solution, the correct option is:  
(1)  $\Delta_{\text{mix}} S = 0$  at constant T and P  
(2)  $\Delta_{\text{mix}} V \neq 0$  at constant T and P  
(3)  $\Delta_{\text{mix}} H = 0$  at constant T and P  
(4)  $\Delta_{\text{mix}} G = 0$  at constant T and P  
**Answer: (3)**
- 2020**
- 137.** Which among the following salt solutions is basic in nature?  
(1) Sodium acetate  
(2) Ammonium chloride  
(3) Ammonium sulphate  
(4) Ammonium nitrate  
**Answer: (1)**
- 138.** If 8 g of a non-electrolyte solute is dissolved in 114 g of n-octane to reduce its vapour pressure to 80%, the molar mass (in  $\text{g mol}^{-1}$ ) of the solute is [Given that molar mass of n-octane is  $114 \text{ g mol}^{-1}$ ]  
(1) 20 (2) 40 (3) 60 (4) 80  
**Answer: (2)**
- 2021**
- 139.** Isotonic solutions have same  
(1) Boiling temperature  
(2) Vapour pressure  
(3) Freezing temperature  
(4) Osmotic pressure  
**Answer: (4)**
- 140.** The following solutions were prepared by dissolving 10 g of glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) in 250 ml of water ( $P_1$ ), 10 g of urea ( $\text{CH}_4\text{N}_2\text{O}$ ) in 250 ml of water ( $P_2$ ) and 10 g of sucrose ( $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ ) in 250 ml of water ( $P_3$ ). The right option for the decreasing order of osmotic pressure of these solutions is:  
(1)  $P_3 > P_1 > P_2$  (2)  $P_2 > P_1 > P_3$   
(3)  $P_1 > P_2 > P_3$  (4)  $P_2 > P_3 > P_1$   
**Answer: (2)**
- 141.** The correct option for the value of vapour pressure of a solution at  $45^\circ\text{C}$  with benzene to octane in molar ratio 3:2 is :  
[At  $45^\circ\text{C}$  vapour pressure of benzene is 280 mm Hg and that of octane is 420 mm Hg. Assume Ideal gas]  
(1) 350 mm of Hg (2) 160 mm of Hg  
(3) 168 mm of Hg (4) 336 mm of Hg  
**Answer: (4)**



# VETRI NEET GATEWAY

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2022

142. In one molal solution that contains 0.5 mole of a solute, there is
- (1) 100 mL of solvent
  - (2) 1000 g of solvent
  - (3) 500 mL of solvent
  - (4) 500 g of solvent

Answer: (4)

## Chemical Kinetics – C1204

2017

143. Mechanism of a hypothetical reaction  $X_2 + Y_2 \rightarrow 2XY$  is given below:
- (i)  $X_2 \rightarrow X + X$  (fast)
  - (ii)  $X + Y_2 \rightleftharpoons XY + Y$  (slow)
  - (iii)  $X + Y \rightarrow XY$  (fast)

The overall order of the reaction will be

- (1) 1.5
- (2) 1
- (3) 2
- (4) 0

Answer: (1)

144. A first order reaction has a specific reaction rate of  $10^{-2} \text{ s}^{-1}$ . How much time will it take for 20 g of the reactant to reduce to 5 g?
- (1) 693.0 second
  - (2) 238.6 second
  - (3) 138.6 second
  - (4) 346.5 second

Answer: (3)

2018

145. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction
- (1) is tripled
  - (2) is doubled
  - (3) is halved
  - (4) remains unchanged

Answer: (2)

146. The correct difference between first- and second-order reactions is that

- (1) a first-order reaction can be catalyzed; a second-order reaction cannot be catalyzed
- (2) the half-life of a first-order reaction does not depend on  $[A]_0$ ; the half-life of a second-order reaction does depend on  $[A]_0$
- (3) the rate of a first-order reaction does not depend on reactant concentrations; the rate of a second-order reaction does depend on reactant concentrations
- (4) the rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations

Answer: (2)

2019

147. If the rate constant for a first order reaction is  $k$ , the time ( $t$ ) required for the completion of 99% of the reaction is given by :

- (1)  $t = 0.693/k$
- (2)  $t = 6.909/k$
- (3)  $t = 4.606/k$
- (4)  $t = 2.303/k$

Answer: (4)

148. For the chemical reaction

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$  the correct option is

- (1)  $-\frac{1}{3} \frac{d[H_2]}{dt} = -\frac{1}{2} \frac{d[NH_3]}{dt}$
- (2)  $-\frac{d[N_2]}{dt} = 2 \frac{d[NH_3]}{dt}$
- (3)  $-\frac{d[N_2]}{dt} = \frac{1}{2} \frac{d[NH_3]}{dt}$
- (4)  $3 \frac{d[H_2]}{dt} = 2 \frac{d[NH_3]}{dt}$

Answer: (3)

2020

149. 1. The half-life for a zero order reaction having 0.02 M initial concentration of reactant is 100 s. The rate constant (in  $\text{mol L}^{-1} \text{ s}^{-1}$ ) for the reaction is

- (1)  $1.0 \times 10^{-2}$
- (2)  $1.0 \times 10^{-4}$
- (3)  $2.0 \times 10^{-4}$
- (4)  $2.0 \times 10^{-3}$

Answer: (2)

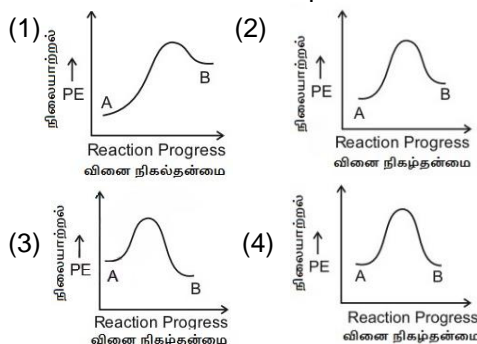
150. In collision theory of chemical reaction,  $Z_{AB}$  represents

- (1) the fraction of molecules with energies equal to  $E_a$
- (2) the fraction of molecules with energies greater than  $E_a$
- (3) the collision frequency of reactants, A and B
- (4) steric factor

Answer: (3)

2021

151. For a reaction  $A \rightarrow B$ , enthalpy of reaction is  $-4.2 \text{ kJ mol}^{-1}$  and enthalpy of activation is  $9.6 \text{ kJ mol}^{-1}$ . The correct potential energy profile for the reaction is shown in option.



Answer (3)

152. The slope of Arrhenius plot  $(\ln k v/s \frac{1}{T})$  of first order reaction is  $-5 \times 10^3 \text{ K}$ . The value of  $E_a$  of the reaction is. Choose the correct option for your answer.

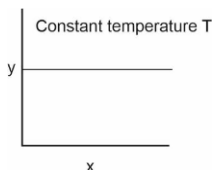
[Given  $R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}$ ]

- (1)  $-83 \text{ kJ mol}^{-1}$
- (2)  $41.5 \text{ kJ mol}^{-1}$
- (3)  $83.0 \text{ kJ mol}^{-1}$
- (4)  $166 \text{ kJ mol}^{-1}$

Answer: (2)

2022

153. The given graph is a representation of kinetics of a reaction.



The y and x axes for zero and first order reactions, respectively are

- (1) zero order ( $y = \text{rate}$  and  $x = \text{concentration}$ ), first order ( $y = t_{1/2}$  and  $x = \text{concentration}$ )
- (2) zero order ( $y = \text{rate}$  and  $x = \text{concentration}$ ), first order ( $y = \text{rate}$  and  $x = t_{1/2}$ )
- (3) zero order ( $y = \text{concentration}$  and  $x = \text{time}$ ), first order ( $y = t_{1/2}$  and  $x = \text{concentration}$ )
- (4) zero order ( $y = \text{concentration}$  and  $x = \text{time}$ ), first order ( $y = \text{rate constant}$  and  $x = \text{concentration}$ )

Answer:(1)

154. For a first order reaction  $A \rightarrow \text{Products}$ , initial concentration of A is  $0.1 \text{ M}$ , which becomes  $0.001 \text{ M}$  after 5 minutes. Rate constant for the reaction in  $\text{min}^{-1}$  is

- (1) 0.4606
- (2) 0.2303
- (3) 1.3818
- (4) 0.9212

Answer:(4)

## Surface Chemistry – C1205

2018

155. On which of the following properties does the coagulating power of an ion depend?

- (1) Both magnitude and sign of the charge on the ion
- (2) Size of the ion alone
- (3) The magnitude of the charge on the ion alone
- (4) The sign of charge on the ion alone

Answer: (1)

2019

156. Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor. M is :

- (1) Be
- (2) Mg
- (3) Ca
- (4) Sr

Answer: (2)





# VETRI NEET GATEWAY

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2020

157. In which of the sols, the colloidal particles are with negative charge?

- (1) Hydrated  $\text{Al}_2\text{O}_3$                       (2)  $\text{TiO}_2$   
(3) Haemoglobin                      (4) Starch

Answer:(4)

2021

158. The right option for the statement "Tyndall effect is exhibited by", is:

- (1) Urea solution                      (2)  $\text{NaCl}$  solution  
(3) Glucose solution                      (4) Starch solution

Answer: (4)

2022

159. The incorrect statement regarding enzymes is

- (1) Enzymes are polysaccharides.  
(2) Enzymes are very specific for a particular reaction and substrate.  
(3) Enzymes are biocatalysts.  
(4) Like chemical catalysts enzymes reduce the activation energy of bio processes.

Answer:(1)

160. Given below are two statements

**Statement I:** In the coagulation of a negative sol, the flocculating power of the three given ions is in the order  $\text{Al}^{3+} > \text{Ba}^{2+} > \text{Na}^+$

**Statement II:** In the coagulation of a positive sol, the flocculating power of the three given salts is in the order  $\text{NaCl} > \text{Na}_2\text{SO}_4 > \text{Na}_3\text{PO}_4$

In the light of the above statements, choose the most appropriate answer from the options given below

- (1) Statement I is correct but Statement II is incorrect.  
(2) Statement I is incorrect but Statement II is correct.  
(3) Both Statement I and Statement II are correct.  
(4) Both Statement I and Statement II are incorrect.

Answer:(1)

## General Principles and Process of Isolation of Elements – C1206

2018

161. Considering Ellingham diagram, which of the following metals can used to reduce alumina?

- (1) Mg                                      (2) Zn  
(3) Fe                                      (4) Cu

Answer: (4)

2019

162. Which one is malachite from the following?

- (1)  $\text{CuFeS}_2$                               (2)  $\text{Cu}(\text{OH})_2$   
(3)  $\text{Fe}_3\text{O}_4$                               (4)  $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$

Answer: (4)

2020

163. Match the elements in Column I with methods of purification in Column II.

Column I	Column II
(a) Boron	(i) Van Arkel method
(b) Tin	(ii) Mond's process
(c) Zirconium	(iii) Liquefaction
(d) Nickel	(iv) Zone refining

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

Answer:(2)

2021

164. The maximum temperature that can be achieved in blast furnace is:

- (1) Upto 5000 K                      (2) Upto 1200 K  
(3) Upto 2200 K                      (4) Upto 1900 K

Answer: (3)

165. Which one of the following methods can be used to obtain highly pure metal which is liquid at room temperature ?

- (1) Zone refining                      (2) Electrolysis  
(3) Chromatography                      (4) Distillation

Answer: (4)



# VETRI NEET GATEWAY

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CHENNAI | MADURAI

2022

166. Match List-I with List-II.

List-I	List-II
(Ores)	(Composition)
(a) Haematite	(i) $\text{Fe}_3\text{O}_4$
(b) Magnetite	(ii) $\text{ZnCO}_3$
(c) Calamine	(iii) $\text{Fe}_2\text{O}_3$
(d) Kaolinite	(iv) $[\text{Al}_2(\text{OH})_4\text{Si}_2\text{O}_5]$

Choose the correct answer from the options given below:

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

Answer:(4)

## p-Block Elements – C1207

2017

167. Which of the following pairs of compounds is isoelectronic and isostructural?

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| (1) $\text{IF}_3$ , $\text{XeF}_2$  | (2) $\text{BeCl}_2$ , $\text{XeF}_2$  |
| (3) $\text{TeI}_2$ , $\text{XeF}_2$ | (4) $\text{IBr}_2^-$ , $\text{XeF}_2$ |

Answer: (4)

168. Match the interhalogen compounds of column I with the geometry in column II and assign the correct code

Column I	Column II
(a) $\text{XX}'$	(i) T-shape
(b) $\text{XX}'_3$	(ii) Pentagonal bipyramidal
(c) $\text{XX}'_5$	(iii) Linear
(d) $\text{XX}'_7$	(iv) Square-pyramidal
	(v) Tetrahedral

Code:

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

Answer: (3)

169. In which pair of ions both the species contain S – S bond?

- |   |   |
|---|---|
| (1) $\text{S}_4\text{O}_6^{2-}$ , $\text{S}_2\text{O}_7^{2-}$ | (2) $\text{S}_2\text{O}_7^{2-}$ , $\text{S}_2\text{O}_3^{2-}$ |
| (3) $\text{S}_4\text{O}_6^{2-}$ , $\text{S}_2\text{O}_3^{2-}$ | (4) $\text{S}_2\text{O}_7^{2-}$ , $\text{S}_2\text{O}_8^{2-}$ |

Answer:(3)

170. It is because of inability of  $ns^2$  electrons of the valence shell to participate in bonding that

- (1)  $\text{Sn}^{4+}$  is reducing while  $\text{Pb}^{4+}$  is oxidising
- (2)  $\text{Sn}^{2+}$  is reducing while  $\text{Pb}^{4+}$  is oxidising
- (3)  $\text{Sn}^{2+}$  is oxidising while  $\text{Pb}^{4+}$  is reducing
- (4)  $\text{Sn}^{2+}$  and  $\text{Pb}^{2+}$  are both oxidising and reducing

Answer: (2)

2018

171. In the structure of  $\text{ClF}_3$ , the number of lone pairs of electrons on central atom 'Cl' is

- |          |           |
|----------|-----------|
| (1) four | (2) two   |
| (3) one  | (4) three |

Answer: (2)

2019

172. 1. Which is the correct thermal stability order for  $\text{H}_2\text{E}$  ( $\text{E} = \text{O}, \text{S}, \text{Se}, \text{Te}$  and  $\text{Po}$ )?

- (1)  $\text{H}_2\text{S} < \text{H}_2\text{O} < \text{H}_2\text{Se} < \text{H}_2\text{Te} < \text{H}_2\text{Po}$
- (2)  $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te} < \text{H}_2\text{Po}$
- (3)  $\text{H}_2\text{Po} < \text{H}_2\text{Te} < \text{H}_2\text{Se} < \text{H}_2\text{S} < \text{H}_2\text{O}$
- (4)  $\text{H}_2\text{Se} < \text{H}_2\text{Te} < \text{H}_2\text{Po} < \text{H}_2\text{O} < \text{H}_2\text{S}$

Answer: (3)

2019

173. Match the following

- |                      |                                  |
|----------------------|----------------------------------|
| (a) Pure nitrogen    | (1) Chlorine                     |
| (b) Haber process    | (2) Sulphuric acid               |
| (c) Contact process  | (3) Ammonia                      |
| (d) Deacon's process | (4) Sodium azide or Barium azide |

Which of the following is the correct option?

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

Answer: (4)



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

174. For the second period elements the correct increasing order of first ionization enthalpy is:

- (1)  $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{N} < \text{O} < \text{F} < \text{Ne}$
- (2)  $\text{Li} < \text{B} < \text{Be} < \text{C} < \text{O} < \text{N} < \text{F} < \text{Ne}$
- (3)  $\text{Li} < \text{B} < \text{Be} < \text{C} < \text{N} < \text{O} < \text{F} < \text{Ne}$
- (4)  $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{O} < \text{N} < \text{F} < \text{Ne}$

Answer: (2)

175. Identify the incorrect statement related to  $\text{PCl}_5$  from the following:

- (1) Three equatorial P-Cl bonds make an angle of  $120^\circ$  with each other
- (2) Two axial P-Cl bonds make an angle of  $180^\circ$  with each other
- (3) Axial P-Cl bonds are longer than equatorial P-Cl bonds
- (4)  $\text{PCl}_5$  molecule is non-reactive

Answer: (4)

176. Match the Xenon compounds in Column-I with its structure in Column - II and assign the correct code

Column-I  
(a)  $\text{XeF}_4$   
(b)  $\text{XeF}_6$   
(c)  $\text{XeOF}_4$   
(d)  $\text{XeO}_3$

Column-II  
(i) Pyramidal  
(ii) square planar  
(iii) distorted octahedral  
(iv) square pyramidal

Code :

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

Answer: (2)

2020

177. Match the compounds of Xe in column I with the molecular structure in column II.

Column I  
(a)  $\text{XeF}_2$   
(b)  $\text{XeF}_4$   
(c)  $\text{XeO}_3$   
(d)  $\text{XeOF}_4$

Column II  
(i) Square planar  
(ii) Linear  
(iii) Square pyramidal  
(iv) Pyramidal

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

Answer: (1)

178. Which of the following oxide is amphoteric in nature?

- |                    |                    |
|--------------------|--------------------|
| (1) $\text{CO}_2$  | (2) $\text{SnO}_2$ |
| (3) $\text{SiO}_2$ | (4) $\text{GeO}_2$ |

Answer: (2)

2021

179. Statement I:

Acid strength increases in the order given as  $\text{HF} \ll \text{HCl} \ll \text{HBr} \ll \text{HI}$ .

Statement II:

As the size of the elements F, Cl, Br, I increases down the group, the bond strength of HF, HCl, HBr and HI decreases and so the acid strength increases.

In the light of the above statements, choose the correct answer from the options given below:

- (1) Statement I is incorrect but Statement II is true
- (2) Both Statement I and Statement II are true
- (3) Both Statement I and Statement II are false
- (4) Statement I correct but Statement II is false

Answer: (2)

180. Noble gases are named because of their inertness towards reactivity. Identify an incorrect statement about them.

- (1) Noble gases have large positive values of electron gain enthalpy
- (2) Noble gases are sparingly soluble in water
- (3) Noble gases have very high melting and boiling points
- (4) Noble gases have weak dispersion forces

Answer: (3)



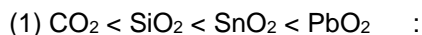
# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

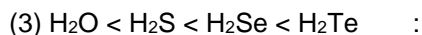
181. In which one of the following arrangements the given sequence is not strictly according to the properties indicated against it?



Increasing oxidizing power



Increasing acidic strength



Increasing  $\text{pK}_a$  values



Increasing acidic character

**Answer: (3)**

2022

182. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

**Assertion (A):** ICl is more reactive than  $\text{I}_2$ .

**Reason (R):** I-Cl bond is weaker than I-I bond.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) (A) is correct but R is not correct

(2) (A) is not correct but (R) is correct

(3) Both (A) and (R) are correct and (R) is the correct explanation of (A).

(4) Both (A) and (R) are correct but (R) is not the correct explanation of (A).

**Answer:(3)**

183. Which of the following statement is not correct about diborane?

(1) The four terminal Hydrogen atoms and the two Boron atoms lie in one plane.

(2) Both the Boron atoms are  $sp^2$  hybridised.

(3) There are two 3-centre-2-electron bonds.

(4) The four terminal B-H bonds are two centre two electron bonds.

**Answer:(2)**

184. Given below are two statements

**Statement I**

The boiling points of the following hydrides of group 16 elements increases in the order –  $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$

**Statement II**

The boiling points of these hydrides increase with increase in molar mass.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Statement I is correct but Statement II is incorrect

(2) Statement I is incorrect but Statement II is correct

(3) Both Statement I and Statement II are correct

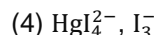
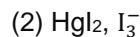
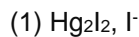
(4) Both Statement I and Statement II are incorrect

**Answer:(4)**

D and f Block elements – C1208

2017

185.  $\text{HgCl}_2$  and  $\text{I}_2$  both when dissolved in water containing  $\text{I}^-$  ions the pair of species formed is



**Answer: (4)**

186. The reason for greater range of oxidation states in actinoids is attributed to

(1)  $4f$  and  $5d$  levels being close in energies

(2) The radioactive nature of actinoids

(3) Actinoid contraction

(4)  $5f$ ,  $6d$  and  $7s$  levels having comparable energies

**Answer: (4)**





# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

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2018

187. Which one of the following ions exhibits  $d-d$  transition and paramagnetism as well?

- (1)  $MnO_4^-$  (2)  $Cr_2O_7^{2-}$   
(3)  $CrO_4^{2-}$  (4)  $MnO_4^{2-}$

Answer: (4)

188. Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the correct code:

Column I	Column II
a. $Co^{3+}$	i. $\sqrt{8}$ B.M.
b. $Cr^{3+}$	ii. $\sqrt{35}$ B.M.
c. $Fe^{3+}$	iii. $\sqrt{3}$ B.M.
d. $Ni^{2+}$	iv. $\sqrt{24}$ B.M.
	v. $\sqrt{15}$ B.M.

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

Answer: (3)

2019

189. Which of the following reactions are disproportionation reaction?

- (a)  $2Cu^+ \rightarrow Cu^{2+} + Cu^0$   
(b)  $3MnO_4^{2-} + 4H^+ \rightarrow 2MnO_4^- + MnO_2 + 2H_2O$   
(c)  $2KMnO_4 \xrightarrow{\Delta} K_2MnO_4 + MnO_2 + O_2$   
(d)  $2MnO_4^- + 3Mn^{2+} + 2H_2O \rightarrow 5MnO_2 + 4H^+$

Select the correct option from the following:

- (1) (a) and (b) only  
(2) (a), (b) and (c)  
(3) (a), (c) and (d)  
(4) (a) and (d) only

Answer: (1)

190. The manganate and permanganate ions are tetrahedral, due to

- (1) The  $\pi$ -bonding involves overlap of p-orbitals of oxygen with p-orbitals of manganese  
(2) There is no  $\pi$ -bonding  
(3) The  $\pi$ -bonding involves overlap of p-orbitals of oxygen with d-orbitals of manganese  
(4) The  $\pi$ -bonding involves overlap of d-orbitals of oxygen with d-orbitals of manganese

Answer: (4)

191. Which of the following species is not stable?

- (1)  $[SiF_6]^{2-}$  (2)  $[GeCl_6]^{2-}$   
(3)  $[Sn(OH)_6]^{2-}$  (4)  $[SiCl_6]^{2-}$

Answer: (4)

2020

192. Identify the incorrect statement from the following:

- (1) The overall decrease in atomic and ionic radii from lanthanum to lutetium is called lanthanoid contraction  
(2) Zirconium and Hafnium have identical radii of 160 pm and 159 pm, respectively as a consequence of lanthanoid contraction  
(3) Lanthanoids reveal only +3 oxidation state  
(4) The lanthanoid ions other than the  $f^0$  type and the  $f^{14}$  type are all paramagnetic

Answer: (3)

193. Match the following aspects with the respective metal.

Aspects	Metal
(a) The metal which reveals a maximum number of oxidation states	(i) Scandium
(b) The metal although placed	(ii) Copper



# VETRI NEET GATEWAY

Academy for NEET Coaching

(Unit of VETRI IAS STUDY CIRCLE)

CHENNAI | MADURAI

in 3d block is considered not as a transition element

- (c) The metal which does not exhibit variable oxidation states (iii) Manganese
- (d) The metal which in +1 oxidation state in aqueous solution undergoes disproportionation (iv) Zinc

Select the correct option :

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

**Answer:(3)**

**2021**

194. Zr (Z = 40) and Hf (Z = 72) have similar atomic and ionic radii because of:
- (1) Having similar chemical properties  
(2) Belonging to same group  
(3) Diagonal relationship  
(4) Lanthanoid contraction

**Answer: (4)**

195. The incorrect statement among the following is:

- (1) Actinoids are highly reactive metals, especially when finely divided.  
(2) Actinoid contraction is greater for element to element than lanthanoid contraction  
(3) Most of the trivalent Lanthanoid ions are colorless in the solid state  
(4) Lanthanoids are good conductors of heat and electricity.

**Answer: (3)**

196. Match List – I with List – II.

**List – I**

- (a)  $[\text{Fe}(\text{CN})_6]^{3-}$   
(b)  $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$   
(c)  $[\text{Fe}(\text{CN})_6]^{2+}$   
(d)  $\text{BF}_3$

**List – II**

- (i) 5.92 BM  
(ii) 0 BM  
(iii) 4.90 BM  
(iv) 1.73 BM

Choose the correct answer from the options given below:

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

**Answer: (1)**

**2022**

197. Gadolinium has a low value of third ionisation enthalpy because of

- (1) high electronegativity  
(2) high basic character  
(3) small size  
(4) high exchange enthalpy

**Answer:(4)**

198. In the neutral or faintly alkaline medium,  $\text{KMnO}_4$  oxidises iodide into iodate. The change in oxidation state of manganese in this reaction is from

- (1) +7 to +3 (2) +6 to +5  
(3) +7 to +4 (4) +6 to +4

**Answer:(3)**

**COORDINATION COMPOUNDS – C1209**

**2017**

199. Correct increasing order for the wavelengths of absorption in the visible region for the complexes of  $\text{Co}^{3+}$  is

- (1)  $[\text{Co}(\text{NH}_3)_6]^{3+}$ ,  $[\text{Co}(\text{en})_3]^{3+}$ ,  $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$   
(2)  $[\text{Co}(\text{en})_3]^{3+}$ ,  $[\text{Co}(\text{NH}_3)_6]^{3+}$ ,  $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$   
(3)  $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ ,  $[\text{Co}(\text{en})_3]^{3+}$ ,  $[\text{Co}(\text{NH}_3)_6]^{3+}$   
(4)  $[\text{Co}(\text{H}_2\text{O})_6]^{3+}$ ,  $[\text{Co}(\text{NH}_3)_6]^{3+}$ ,  $[\text{Co}(\text{en})_3]^{3+}$

**Answer: (2)**



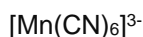
# VETRI NEET GATEWAY

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(Unit of VETRI IAS STUDY CIRCLE)

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200. Pick out the correct statement with respect



- (1) It is  $ds^2$  hybridised and square planar
- (2) It is  $sp^3d^2$  hybridised and octahedral
- (3) It is  $sp^3d$  hybridised and tetrahedral
- (4) It is  $d^2sp^3$  hybridised and octahedral

Answer: (4)

2019

205. What is the correct electronic configuration of the central atom in  $\text{K}_4[\text{Fe}(\text{CN})_6]$  based on crystal field theory?

- (1)  $t_{2g}^4 e_g^2$
- (2)  $t_{2g}^6 e_g^0$
- (3)  $e^3 t_2^3$
- (4)  $e^3 t_2^2$

Answer: (2)

201. Which of the following oxides is most acidic in nature?

- (1) BaO
- (2) BeO
- (3) MgO
- (4) CaO

Answer: (2)

2021

206. Ethylene diaminetetraacetate (EDTA) ion is:

- (1) Tridentate ligand with three "N" donor atoms
- (2) Hexadentate ligand with four "O" and two "N" donor atoms
- (3) Unidentate ligand
- (4) Bidentate ligand with two "N" donor atoms

Answer: (2)

2018

202. Iron carbonyl,  $\text{Fe}(\text{CO})_5$  is

- (1) trinuclear
- (2) mononuclear
- (3) tetranuclear
- (4) dinuclear

Answer: (2)

2022

203. The type of isomerism shown by the complex  $[\text{CoCl}_2(\text{en})_2]$  is

- (1) Ionization isomerism
- (2) Coordination isomerism
- (3) Geometrical isomerism
- (4) Linkage isomerism

Answer: (3)

207. Identify the incorrect statement from the following.

- (1) In an atom, all the five 3d orbitals are equal in energy in free state.
- (2) The shapes of  $d_{xy}$ ,  $d_{yz}$  and  $d_{zx}$  orbitals are similar to each other; and  $d_{x^2-y^2}$  and  $d_{z^2}$  are similar to each other.
- (3) All the five 5d orbitals are different in size when compared to the respective 4d orbitals.
- (4) All the five 4d orbitals have shapes similar to the respective 3d orbitals.

Answer: (2)

204. The geometry and magnetic behaviour of the complex  $[\text{Ni}(\text{CO})_4]$  are

- (1) square planar geometry and paramagnetic
- (2) tetrahedral geometry and diamagnetic
- (3) square planar geometry and diamagnetic
- (4) tetrahedral geometry and paramagnetic

Answer: (2)

208. The order of energy absorbed which is responsible for the color of complexes

- (A)  $[\text{Ni}(\text{H}_2\text{O})_2(\text{en})_2]^{2+}$
- (B)  $[\text{Ni}(\text{H}_2\text{O})_4(\text{en})]^{2+}$  and
- (C)  $[\text{Ni}(\text{en})_3]^{2+}$

is

- (1) (C) > (A) > (B)
- (2) (B) > (A) > (C)
- (3) (A) > (B) > (C)
- (4) (C) > (B) > (A)

Answer: (1)

## Haloalkanes and Haloarenes – C1210

2017

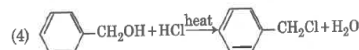
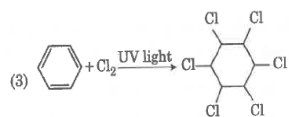
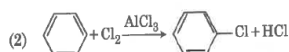
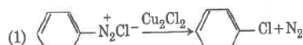
209. An example of a sigma bonded organometallic compound is

- (1) Cobaltocene (2) Ruthenocene  
(3) Grignard's reagent (4) Ferrocene

Ans: (3)

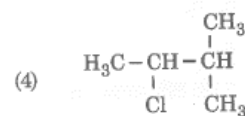
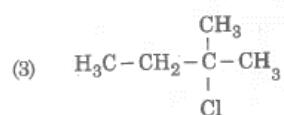
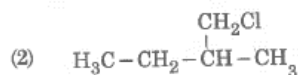
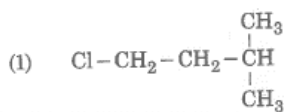
2019

210. Among the following, the reaction that proceeds through an electrophilic substitution, is:



Answer: (2)

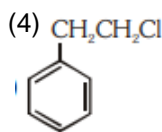
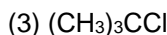
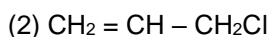
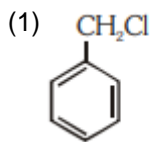
211. An alkene "A" on reaction with  $O_3$  and  $Zn - H_2O$  gives propanone and ethanal in equimolar ratio. Addition of  $HCl$  to alkene "A" gives "B" as the major product. The structure of product "B" is:



Answer: (3)

2020

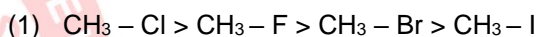
212. Which of the following will NOT undergo  $S_N1$  reaction with  $\bar{O}H$ ?



Answer: (4)

2021

213. The correct sequence of bond enthalpy of 'C - X' bond is:



Answer: (3)

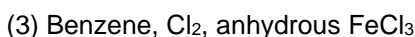
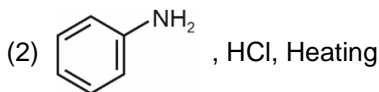
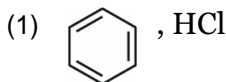
214. The major product formed in dehydrohalogenation reaction of 2-Bromo pentane is Pent-2-ene. This product formation is based on?



Answer: (2)

2022

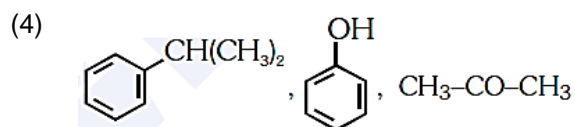
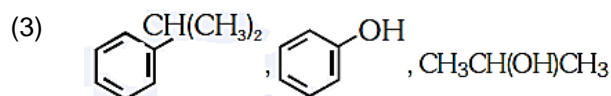
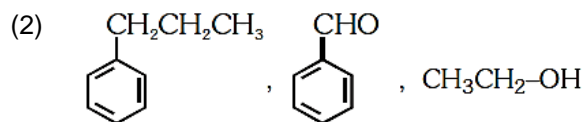
215. Which of the following sequence of reactions is suitable to synthesize chlorobenzene?



Answer: (3)



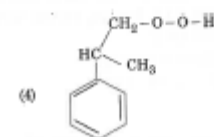
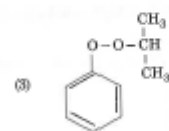
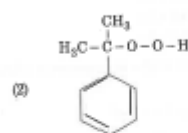
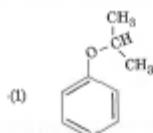
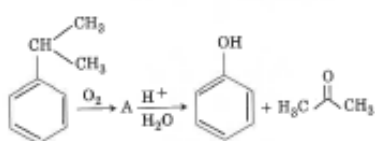




Answer:(3)

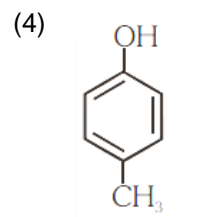
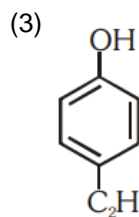
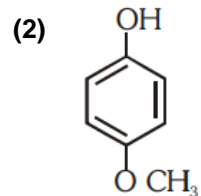
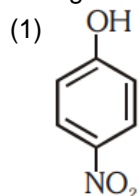
2020

222. The structure of intermediate A in the following reaction, is :



Answer:(2)

223. Which of the following substituted phenols is the strongest acid?



Answer:(2)

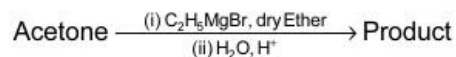
224.  $\text{CH}_3\text{CH}_2\text{CH} = \text{CH}_2 \xrightarrow[\text{H}_2\text{O, H}^+, \text{OH}^-]{\text{B}_2\text{H}_6} \text{Z}$ . What is Z?

- (1)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$   
 (2)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$   
 (3)  $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$   
 (4)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$

Answer:(2)

2021

225. What is the IUPAC name of the organic compound formed in the following chemical reaction?



- (1) 2-methylbutan-2-ol  
 (2) 2-methylpropan-2-ol  
 (3) pentan-2-ol  
 (4) pentan-3-ol

Answer: (1)

2022

226. Given below are two statements

**Statement I:**

The acidic strength of monosubstituted nitrophenol is higher than phenol because of electron withdrawing nitro group.

**Statement II:**

$\alpha$ -nitrophenol,  $m$ -nitrophenol and  $p$ -nitrophenol will have same acidic strength as they have one nitro group attached to the phenolic ring. In the light of the above statements, choose the most appropriate answer from the options given below:

**(1) Statement I is correct but Statement II is incorrect.**

(2) Statement I is incorrect but Statement II is correct.

(3) Both Statement I and Statement II are correct.

(4) Both Statement I and Statement II are incorrect.

**Answer:(1)**

**227.** Given below are two statements:

**Statement I:**

In Lucas test, primary, secondary and tertiary alcohols are distinguished on the basis of their reactivity with conc. HCl + ZnCl<sub>2</sub>, known as Lucas Reagent.

**Statement II:**

Primary alcohols are most reactive and immediately produce turbidity at room temperature on reaction with Lucas Reagent.

In the light of the above statements, choose the most appropriate answer from the options given below:

(1) Statement I is correct but Statement II is incorrect

(2) Statement I is incorrect but Statement II is correct

(3) Both Statement I and Statement II are correct

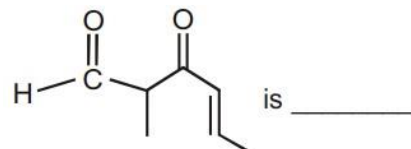
(4) Both Statement I and Statement II are incorrect

**Answer:(1)**

**ALDEHYDES, KETONES AND CARBOXYLIC ACIDS – C1212**

**2017**

**228.** The IUPAC name of the compound



(1) 3-keto-2-methylhex-5-enal

(2) 3-keto-2-methylhex-4-enal

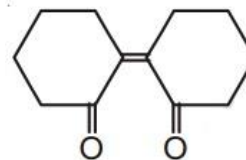
(3) 5-formylhex-2-en-3-one

(4) 5-methyl-4-oxohex-2-en-5-al

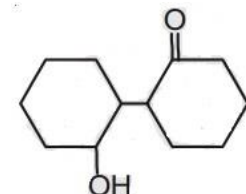
**Answer: (2)**

**229.** Of the following, which is the product formed when cyclohexanone undergoes aldol condensation followed by heating?

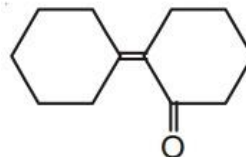
(1)



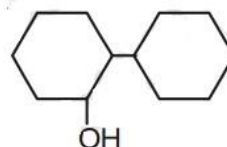
(2)



(3)



(4)



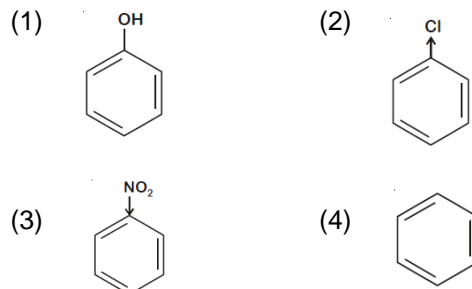
**Answer: (3)**

2018

230. Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their
- (1) more extensive association of carboxylic acid via van der Waals force of attraction
  - (2) formation of carboxylate ion
  - (3) formation of intramolecular H-bonding
  - (4) formation of intermolecular H-bonding

Answer: (1)

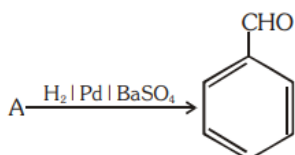
233. Which of the following compound is most reactive in electrophilic aromatic substitution?



Answer: (1)

2020

231. Identify compound (A) in the following reaction:

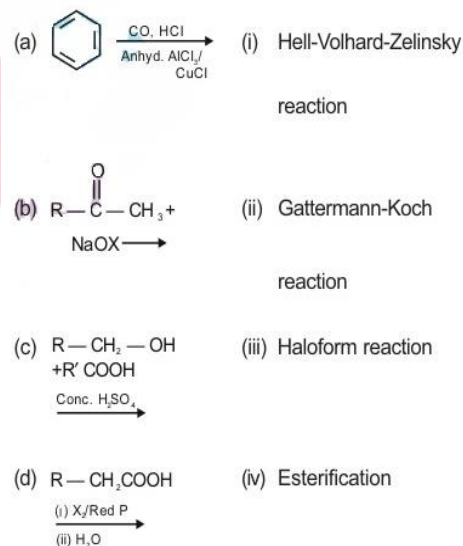


- (1) Benzoic acid
- (2) Benzoyl chloride
- (3) Toluene
- (4) Acetophenone

Answer: (2)

2021

234. Match List – I with List – II

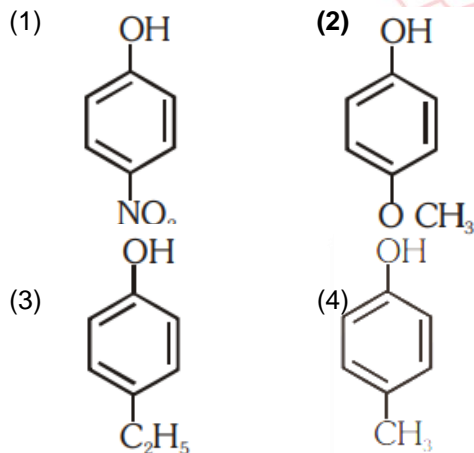


Select the correct option :

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

Answer (3)

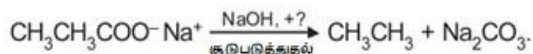
232. Which of the following substituted phenols is the strongest acid?



Answer: (1)



235. Consider the above reaction and identify the missing reagent/chemical.



- (1) DIBAL-H
- (2)  $\text{B}_2\text{H}_6$
- (3) Red Phosphorus
- (4) CaO

Answer: (4)

2022

236. Given below are two statements :

**Statement I :** The boiling points of aldehydes and ketones are higher than hydrocarbons of comparable molecular masses because of weak molecular association in aldehydes and ketones due to dipole – dipole interactions.

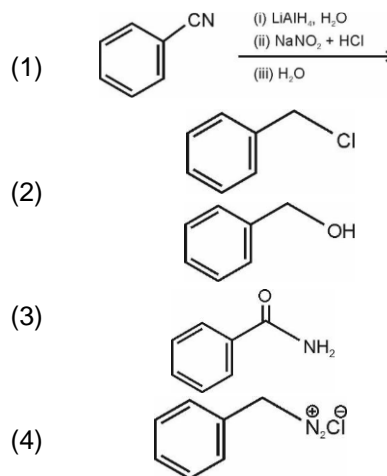
**Statement II :** The boiling points of aldehydes and ketones are lower than the alcohols of similar molecular masses due to the absence of H-bonding.

In the light of the above statements, choose the most appropriate answer from the given below

- (1) Statement I is correct but Statement II is incorrect
- (2) Statement I is incorrect but Statement II is correct
- (3) Both Statement I and Statement II are correct
- (4) Both Statement I and Statement II are incorrect

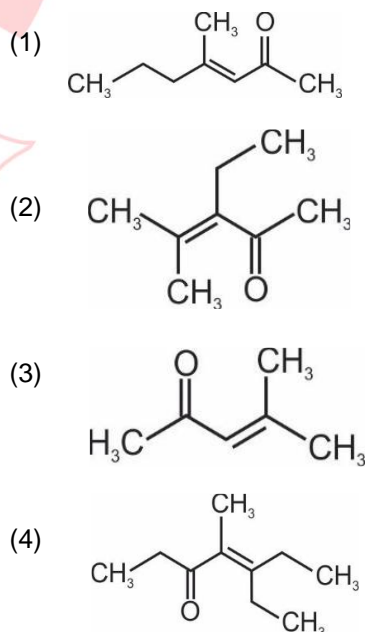
Answer: (3)

237. The product formed from the following reaction sequence is



Answer: (4)

238. Which one of the following is not formed when acetone reacts with 2-pentanone in the presence of dilute NaOH followed by heating?



Answer: (4)

239. Match List-I with List-II.

List – I

(Products formed)

- (a) Cyanohydrin  
(b) Acetal  
(c) Schiff's base  
(d) Oxime

List – II

(Reaction of  
carbonyl compound  
with)

- (i)  $\text{NH}_2\text{OH}$   
(ii)  $\text{RNH}_2$   
(iii) alcohol  
(iv)  $\text{HCN}$

Choose the correct answer from the options  
given below

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

Answer: (2)

240.  $\text{RM}_g\text{X} + \text{CO}_2 \xrightarrow{\text{Y}} \text{RCOOH}$

What is Y in the above reaction?

- (1)  $\text{RCOO-X}^+$   
(2)  $(\text{RCOO})_2\text{Mg}$   
(3)  $\text{RCOO-Mg}^+\text{X}$   
(4)  $\text{R}_3\text{CO-Mg}^+\text{X}$

Answer: (3)

Organic Compound and Containing  
Nitrogen – C1213

2019

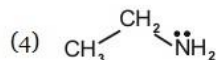
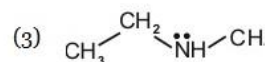
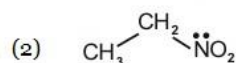
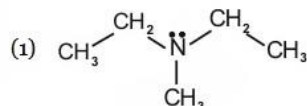
241. The correct order of the basic strength of methyl substituted amines in aqueous solution is :

- (1)  $(\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2 > (\text{CH}_3)_3\text{N}$   
(2)  $(\text{CH}_3)_3\text{N} > \text{CH}_3\text{NH}_2 > (\text{CH}_3)_2\text{NH}$   
(3)  $(\text{CH}_3)_3\text{N} > (\text{CH}_3)_2\text{NH} > \text{CH}_3\text{NH}_2$   
(4)  $\text{CH}_3\text{NH}_2 > (\text{CH}_3)_2\text{NH} > (\text{CH}_3)_3\text{N}$

Answer: (1)

2021

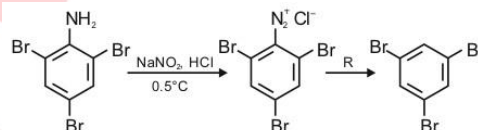
242. Identify the compound that will react with Hinsberg's reagent to give a solid which dissolves in alkali.



Answer (4)

243. The reagent 'R' in the given sequence of chemical reaction is:

கீழ்க்கண்ட வினைத்தொடரில் பயன்படும் 'R' என்ற வினை கரணி:



- (1)  $\text{CuCN/KCN}$  (2)  $\text{H}_2\text{O}$   
(3)  $\text{CH}_3\text{CH}_2\text{OH}$  (4)  $\text{HI}$

Answer (3)

2022

244. Given below are two statements

**Statement I:** Primary aliphatic amines react with  $\text{HNO}_2$  to give unstable diazonium salts.

**Statement II:** Primary aromatic amines react with  $\text{HNO}_2$  to form diazonium salts which are stable even above 300 K. In the light of the above statements, choose the most appropriate answer from the options given below

- (1) Statement I is correct but Statement II is incorrect.



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- (2) Statement I is incorrect but Statement II is correct.
- (3) Both Statement I and Statement II are correct.
- (4) Both Statement I and Statement II are incorrect.

**Answer: (1)**

**2020**

Reaction of propanamide with ethanolic sodium hydroxide and bromine will give

- (1) Aniline (2) Ethylamine  
(3) Methylamine (4) Propylamine

**Answer: (2)**

**Biomolecules – C1214**

**2017**

**245.** Which of the following statements is not correct?

- (1) Denaturation makes the proteins more active
- (2) Insulin maintains sugar level in the blood of a human body
- (3) Ovalbumin is a simple food reserve in egg-white
- (4) Blood proteins thrombin and fibrinogen are involved in blood clotting

**Answer: (1)**

**2018**

**246.** The difference between amylose and amylopectin is

- (1) Amylopectin have 1 → 4 α-linkage and 1 → 6 α-linkage
- (2) Amylose have 1 → 4 α-linkage and 1 → 6 β-linkage
- (3) Amylopectin have 1 → 4 α-linkage and 1 → 6 β-linkage
- (4) Amylose is made up of glucose and galactose

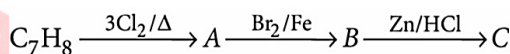
**Answer: (1)**

**247.** Hydrocarbon (A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms. (A) is

- (1) CH<sub>3</sub> – CH<sub>3</sub>  
(2) CH<sub>2</sub> = CH<sub>2</sub>  
(3) CH = CH  
(4) CH<sub>4</sub>

**Answer: (4)**

**248.** The compound C<sub>7</sub>H<sub>8</sub> undergoes the following reactions:



The product 'C' is

- (1) 3-bromo-2,4,6-trichlorotoluene  
(2) o-bromotoluene  
(3) m-bromotoluene  
(4) p-bromotoluene

**Answer: (3)**

**249.** Which of the following compounds can form a zwitterion?

- (1) Benzoic acid  
(2) Acetanilide  
(3) Aniline  
(4) Glycine

**Answer: (4)**

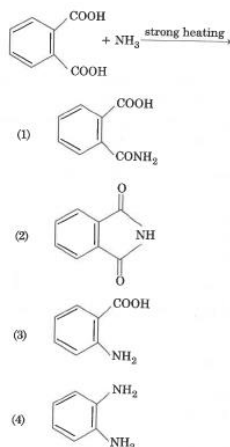
**2019**

**250.** The non-essential amino acid among the following is :

- (1) valine (2) leucine  
(3) alanine (4) lysine

**Answer: (3)**

251. The major product of the following reaction is:



Answer: (2)

2020

252. Deficiency of which vitamin causes osteomalacia?

- (1) Vitamin E                      (2) Vitamin A  
(3) Vitamin D                      (4) Vitamin K

Answer: (3)

253. The reaction of concentrated sulphuric acid with carbohydrates ( $C_{12}H_{22}O_{11}$ ) is an example of

- (1) Sulphonation  
(2) Dehydration  
(3) Oxidation  
(4) Reduction

Answer: (2)

254. Which of the following statement is not true about glucose?

- (1) It is an aldopentose.  
(2) It is an aldohexose.  
(3) It contains five hydroxyl groups.  
(4) It is a reducing sugar.

Answer: (3)

2021

255. The RBC efficiency is deficiency disease of:

- (1) Vitamin B<sub>2</sub>                      (2) Vitamin B<sub>12</sub>  
(3) Vitamin B<sub>6</sub>                      (4) Vitamin B<sub>1</sub>

Answer: (2)

Polymers – C1215

2018

256. Regarding cross-linked or network polymers, which of the following statements is incorrect?

- (1) Examples are bakelite and melamine.  
(2) They are formed from bi- and tri-functional  
(3) They contain covalent bonds between various linear polymer chains.  
(4) They contain strong covalent bonds in their polymer chains.

Answer: (3)

2019

257. The biodegradable polymer is :

- (1) nylon-6, 6                      (2) nylon 2-nylon 6  
(3) nylon-6                          (4) Buna-S

Answer: (2)

2020

258. Which of the following statement is correct about Bakelite?

- (1) It is a linear polymer  
(2) It is a cross linked polymer  
(3) It is an addition polymer  
(4) It is a branched chain polymer

Answer: (2)

2021

259. Which one of the following polymers is prepared by addition polymerisation?

- (1) Dacron                          (2) Teflon  
(3) Nylon-66                      (4) Novolac

Answer: (2)

Chemistry in Everyday Life – C1216

2017

260. Mixture of chloroxylenol and terpineol acts as

- (1) Antibiotic                      (2) Analgesic  
(3) Antiseptic                      (4) Antipyretic

Answer: (3)





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2022

2021

261. Which statement regarding polymers is not correct?

- (1) Thermoplastic polymers are capable of repeatedly softening and hardening on heating and cooling respectively
- (2) Thermosetting polymers are reusable
- (3) Elastomers have polymer chains held together by weak intermolecular forces
- (4) Fibers possess high tensile strength

**Answer: (2)**

2019

262. Among the following, the narrow spectrum antibiotic is:

- (1) penicillin G
- (2) ampicillin
- (3) amoxicillin
- (4) chloramphenicol

**Answer: (1)**

263. The method used to remove temporary hardness of water is:

- (1) Calgon's method
- (2) Clark's method
- (3) Ion-exchange method
- (4) Synthetic resins method

**Answer: (2)**

2020

264. Which of the following is not true about chloramphenicol?

- (1) It is bacteriostatic.
- (2) It inhibits the growth of only gram positive bacteria.
- (3) It is a broad spectrum antibiotic.
- (4) It is not bactericidal.

**Answer: (2)**

265. Given below are two statements:

Statement I: Aspirin and Paracetamol belong to the class of narcotic analgesics.

Statement II: Morphine and Heroin are non-narcotic analgesics.

In the light of the above statements, choose the correct answer from the options given below:

- (1) Statement I is incorrect but Statement II is true.
- (2) Both Statement I and Statement II are true
- (3) Both Statement I and Statement II are false
- (4) Statement I is correct but Statement II is false

**Answer: (3)**

2022

266. Match List-I with List-II.

List-I (Drug class)	List-II (Drug molecule)
(a) Antacids	(i) Salvarsan
(b) Antihistamines	(ii) Morphine
(c) Analgesics	(iii) Cimetidine
(d) Antimicrobials	(iv) Seldane

Choose the correct answer from the options given below :

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

**Answer: (4)**