

MODEL CET PAPER

1. The IUPAC name of the monomer of natural rubber is:
 - a) Butadiene
 - b) Isoprene
 - c) 2-methyl-1, 3-butadiene
 - d) 3-methyl-1, 2-butadiene

2. Which of the following has maximum second ionisation energy?
 - a) N
 - b) C
 - c) O
 - d) Bc

3. The solubility product of a Sparingly soluble salt is $4S^3$, Then the salt is :
 - a) Silver Chloride
 - b) Barium Sulphate
 - c) Aluminium Sulphate
 - d) Silver Chromate

4. Which one will have lowest pH, when one mole of each of the compound is hydrolysed?
- a) CH_3COCl
 - b) $\text{C}_6\text{H}_5\text{OCH}_3$
 - c) $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$
 - d) CH_3COCH_3
5. In a compound C, H and N atoms are present in the ratio 9:1:3.5 by weight. If the molecular weight of the compound is 108, then the molecular formula of the compound is:
- a) $\text{C}_2\text{H}_6\text{N}_2$
 - b) $\text{C}_3\text{H}_4\text{N}$
 - c) $\text{C}_6\text{H}_8\text{N}_2$
 - d) $\text{C}_9\text{H}_{12}\text{N}_2$

6. The rate of the diffusion of hydrogen gas is $\sqrt{7}$ times that of nitrogen gas, then:

a) $T_{\text{H}_2} = 2T_{\text{N}_2}$

b) $T_{\text{N}_2} = 2T_{\text{H}_2}$

c) $T_{\text{N}_2} = \sqrt{7}T_{\text{H}_2}$

d) $T_{\text{H}_2} = \sqrt{7}T_{\text{N}_2}$

7. Equal masses of Methane and Oxygen are mixed in an empty container at 25°C . The fraction of total pressure exerted by O_2 is :

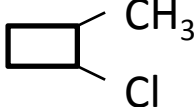
a) $1/3 \times 273/298$

b) $1/3$

c) $1/2$

d) $2/3$

8. The enthalpy of vaporisation of water is 40.7 KJ mol^{-1} . The entropy of vapourisation of water is:
- a) $-40.7 \text{ KJ mol}^{-1} \text{ K}^{-1}$
 - b) $407 \text{ J mol}^{-1} \text{ K}^{-1}$
 - c) $109 \text{ J mol}^{-1} \text{ K}^{-1}$
 - d) 722 J mol^{-1}
9. Silver oxide can be thermally decomposed because:
- a) $\Delta G^{\circ} < 0$
 - b) $\Delta G^{\circ} = 0$
 - c) $\Delta G^{\circ} > 0$
 - d) ΔG° cannot be predicted
10. The magnetic moment of a transition metal is found to be 3.87 BM . Then the number of unpaired electrons present in the metal is :
- a) 1
 - b) 2
 - c) 3
 - d) 4

11. In the compound  the number of optical isomers are:

- a) 2
- b) 4
- c) 8
- d) 16

12. For a reaction the energy of activation was found exactly equal to $+2.303 RT$ Joules then the value of K/A is :

- a) $1/100$
- b) 0.002
- c) 0.1
- d) 10

13. Xenon gets adsorbed on activated charcoal. Then which of the following is True?

- a) $\Delta H < 0, \Delta S < 0$
- b) $\Delta H < 0, \Delta S > 0$
- c) $\Delta H < 0, \Delta S = 0$
- d) $\Delta H = \Delta S$

14. Acetaldehyde is made to react with dilute NaOH solution. The product obtained shows:
- a) Geometric Isomerism
 - b) Optical Isomerism
 - c) Structural Isomerism
 - d) Chain Isomerism
15. Which of the following is used to absorb excess of oxygen during Ramsay and Rayleigh's method?
- a) Neutral Pyrogallol
 - b) Acidic Pyrogallol
 - c) Alcoholic Pyrogallol
 - d) Alkaline Pyrogallol
16. The number of moles oxygen liberated by electrolysis of 90g of water is :
- a) 9 moles
 - b) 4.5 moles
 - c) 2.5 moles
 - d) 5 moles

17. Solution S1 contains 3g Urea/litre and Solution S2 contains 9g of Glucose/litre. At 298 K, the Osmotic pressure of:

- a. $S_1 > S_2$
- b. $S_1 < S_2$
- c. Both the solution is same
- d. Both the solution is atmo

18. How many σ bonds are present in $\text{CH}_2 = \text{CH} - \underset{\text{CH}_3}{\text{C}} = \text{CH}_2$

- a) 10
- b) 12
- c) 2
- d) 14

19. The set of quantum members for the unpaired electron of chlorine atom are

- a) $n=2, l=1, m=0$
- b) $n=2, l=-1, m=0$
- c) $n=3, l=1, m=1$
- d) $n=3, l=0, m=0$

20. The first law of thermodynamics for an isothermal process is mathematically represented as :

- a) $\Delta U = q$
- b) $q = -W$
- c) $q = 0$
- d) $\Delta U = q + W$

21. Alanine in acid medium appears as

- a) Anion
- b) Neutral
- c) Cation
- d) Zwitter ion

22. Which is the odd one out ?

- a) Triolein
- b) Keratin
- c) Insulin
- d) haemoglobin

23. The coordination number, oxidation state and the EAN of iron in the complex $\text{Fe}(\text{CO})_5$ respectively are:
- a) 5, 5, 36
 - b) 5, 3, 36
 - c) 5, 2, 28
 - d) 5, 0, 36
24. According to Bohr's theory, the angular momentum of an electron of 5th orbit is:
- a) $5h/2\pi$
 - b) $10h/\pi$
 - c) $25h/\pi$
 - d) $5\pi/2h$
25. The pH of a solution is 6. if some HCl is added to this solution to make the pH equal to 3, the concentration of H^+ ions:
- a) decreases by 1000
 - b) Increases by 1000
 - c) Increases by 100
 - d) Decreases by 100

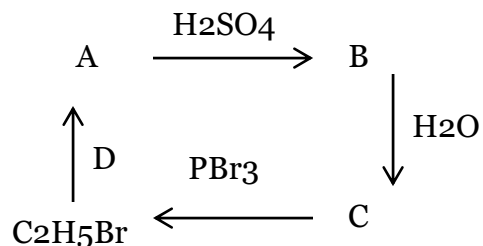
26. Gold number of Gelatin (I), Gum Arabic (II) and egg albumin (III) are 0.005, 0.20 and 0.18 respectively. Arrange these in decreasing order of protective power

- a) $I > II > III$
- b) $I > III > II$
- c) $II > III > I$
- d) $III > II > I$

27. The heats of neutralisation of four acids A, B, C and D, when neutralised against a common base are 13.8 Kcal, 9.4 Kcal, 11.2 Kcal and 12.4 Kcal respectively. The weakest among these acids is:

- a) A
- b) B
- c) C
- d) D

28. In the reaction C & D respectively are:



- a) $\text{C}_2\text{H}_5\text{OH}$, KOH
- b) KOH , $\text{C}_2\text{H}_5\text{OH}$
- c) CH_3OH , NaOH
- d) NaOH , CH_3OH

29. Wurtz reaction of a mixture of 2 – Chloropropane and 1 – Chloropropane, the product does not contain:

- a) 2 – methyl pentane
- b) Hexane
- c) 2, 3 – Dimethyl butane
- d) Pentane

30. In a reaction, $X + Zn \longrightarrow \square + Zn Br_2$. X is :

- a) 1, 4 – Dibromo butane
- b) 1, 3 – Dibromo butane
- c) 1, 1 – Dibromo butane
- d) 4, 4 – Dibromo butane

31. Freundlich adsorption isotherm gives a straight line on plotting against:

- a) x/m and $1/p$
- b) $\log x/m$ and P
- c) x/m and P
- d) $\log x/m$ and $\log p$

32. Oil of winter green contains the functional groups :

- a) Ester and phenol
- b) Ether and alcohol
- c) Ester and alcohol
- d) Acid and phenol

33. For the Cell reaction, $A + B_{(aq)}^{2+} \rightleftharpoons C + D_{(aq)}^{2+}$ the equilibrium constant is 100. Then E_0 cell at 25°C is :

- a) 0.059
- b) 0.0295
- c) 0.118
- d) 0.590

34. The conjugate acid of OH^- is :

- a) H_2O
- b) O_2^-
- c) H_3O^+
- d) O_2^+

35. A certain salt gives brick red colour for the flame test. On adding dil HCL, a brisk effervescence liberating a colourless gas which turns lime water milky is obtained. The salt is:

- a) CaBr_2
- b) CaSO_4
- c) CaCO_3
- d) CaCl_2

36. A gas 'X' is passed through water to form a saturated solution. The aqueous solution on treatment with AgNO_3 solution gives a White precipitate. The saturated aqueous solution also dissolves magnesium ribbon with the evolution of a colorless gas Y. Identify X and Y respectively:

- a) $\text{X} = \text{CO}_2$, $\text{Y} = \text{Cl}_2$
- b) $\text{X} = \text{Cl}_2$, $\text{Y} = \text{CO}_2$
- c) $\text{X} = \text{Cl}_2$, $\text{Y} = \text{H}_2$
- d) $\text{X} = \text{H}_2$, $\text{Y} = \text{Cl}_2$

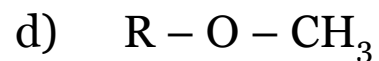
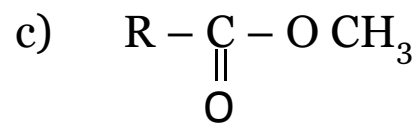
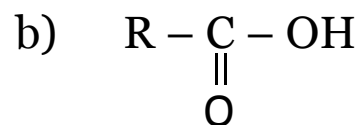
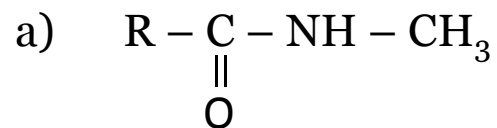
37. Which of the following tests will hold good for both acetaldehyde and acetone?

- a) Tollens
- b) Fehlings
- c) Schiff's
- d) Iodoform

38. Which order reaction obey's the expression $t_{1/2} = 1/Ka^2$?

- a) 1
- b) 2
- c) 3
- d) 0

39. Which of the following type of carbonyl group will produce Oxime on reaction with hydroxylamine ?



40. 6.022×10^{22} molecules of CO_2 at STP will occupy a volume of :

a) 6.02 litre

b) 2.24 litre

c) 1.12 litre

d) 22.4 litre

41. Which of the following species has highest bond order ?

- a) O_2
- b) O_2^-
- c) O_2^+
- d) O_2^{2-}

42. The elements A and B have the following electronic configurations

A: $1S^2 2S^2 2P^6 3S^2 3P^4$ B: $1S^2 2S^2 2P^6 3S^2 3P^2$

A and B are likely to form a compound of formula

- a) AB
- b) A_2B
- c) AB_2
- d) AB_3

43. Which of the following is not the property of crystalline solids?

- a) Definite geometry
- b) Sharp melting points
- c) Isotropy
- d) Anisotropy

44. TlCl has NaCl structure, the coordination number of Tl⁺ in TlCl is

- a) 6
- b) 4
- c) 8
- d) 3

45. Which of the following metal has no action with dil H₂SO₄?

- a) Magnesium
- b) Iron
- c) Zinc
- d) Copper

46. 10g of calcium carbonate completely reacts with:

- a) 36.5g of HCl
- b) 3.65g of HCl
- c) 0.365g of HCl
- d) 7.3 g of HCl

47. Half life period of reaction is 50 min. How much time will it take for the reaction to be reduced to $1/8$ of the initial concentration ?
- a) 25 min
 - b) 150 min
 - c) 50 min
 - d) 1.25 min
48. A new Carbon – Carbon bond formation is possible in :
- a) Cannizaro's reaction
 - b) Friedel crafts reaction
 - c) Clemmensen's reaction
 - d) Diazotisation reaction
49. Which of the following does not refer to the principle forms of Carbohydrate present in our food :
- a) Cellulose
 - b) Starch
 - c) Sucrose
 - d) Fructose
50. Insulin regulates the glucose level in blood and is responsible for diabetes

50. Insulin regulates the glucose level in blood and is responsible for diabetes. This compound is a/an :
- a) Enzyme
 - b) Hormone
 - c) Antibiotic
 - d) Co-Enzyme
51. In which of the following case does the reaction go farthest to completion ?
- a) $K = 10^{20}$
 - b) $K = 10^{-20}$
 - c) $K = 10$
 - d) $K = 1$
52. Which of the following pairs constitute a buffer ?
- a) NaOH and NaCl
 - b) HNO_3 and NH_4NO_3
 - c) HCl and KCl
 - d) HNO_2 and NaNO_2
53. The following four colourless salt

53. The following four colorless salt solutions are placed in separate test tubes and a strip of copper is placed in each. Which solution finally turns blue ?
- a) ZnCl_2
 - b) AgCl
 - c) CdCl_2
 - d) PbCl_2
54. Which of the following contains two unpaired electrons ?
- a) Sc^{3+}
 - b) Cu^+
 - c) Ni^{2+}
 - d) Ti^{3+}
55. The number ions per mole of the complex $\text{CoCl}_3 \cdot 4\text{NH}_3$ in aqueous solution will be :
- a) 3
 - b) 7
 - c) 3
 - d) 4

56. Which of the following is +I effect inducing group ?
- a) $-\text{NO}_2$
 - b) $-\text{COOH}$
 - c) $(\text{CH}_3)_2\text{CH}-$
 - d) C_6H_5-
57. Principal, magnetic and azimuthal quantum numbers are respectively related to:
- a) size, orientation, shape
 - b) Size, shape, orientation
 - c) Shape, size, orientation
 - d) None of these
58. The electronic configuration of an element is $1\text{S}^22\text{S}^22\text{P}^6 3\text{S}^23\text{P}^3$. What is the atomic number of the element which is just below this element in the periodic table?
- a) 31
 - b) 33
 - c) 34
 - d) 49

59. Which of the following process does not involve a catalyst?

- a) Ostwalds process
- b) Contact process
- c) Thermite process
- d) Haber's process

60. Which of the following vitamins is synthesised by Sun rays?

- a) A
- b) K
- c) E
- d) D