NEET CHEMISTRY 2018-19 - Chennai

Periodic Test : 01 **Test ID : 013**

Number of questions: 150 **Test date: 20.03.2019**

Name: _____ **Time**: 3HRS

ID No: _____

Negative Marks : 4 marks for correct attempt & 1 mark deducted for every wrong attempt.

1. For a given reaction, $\Delta H = 35.5$ KJ mol^{-1} and $\Delta S = 83.6$ J K^{-1} mol^{-1}. The reaction is spontaneous at (Assume ΔH and ΔS do not vary with temperature.)
   a. T>425K
   b. All temperatures
   c. T> 298K
   d. T < 425K

2. 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 2.50L to a final volume of 4.50L. The change in internal energy ΔU of the gas in joules will be
   a. -500 J
   b. -505 J
   c. +505 J
   d. 1136.25 J

3. For a sample of perfect gas when its pressure is changed isothermally from P_i to P_f, the entropy change is given by
   a. $\Delta S = nR \ln(P_f / P_i)$
   b. $\Delta S = nR \ln(P_i / P_f)$
   c. $\Delta S = nRT \ln(P_f / P_i)$
   d. $\Delta S = nRT \ln(P_i / P_f)$

4. The correct thermodynamic conditions for the spontaneous reaction at all temperatures is
   a. $\Delta H < 0$ and $\Delta S > 0$
   b. $\Delta H < 0$ and $\Delta S < 0$
   c. $\Delta H < 0$ and $\Delta S = 0$
   d. $\Delta H > 0$ and $\Delta S < 0$

5. Consider the following liquid – vapour equilibrium.
   Liquid $\rightleftharpoons$ Vapour
   Which of the following relations is correct?

   (a) $\frac{d\ln P}{dT^2} = \frac{-\Delta H_v}{T^2}$ (b) $\frac{d\ln P}{dT} = \frac{\Delta H_v}{RT^2}$
   (c) $\frac{d\ln G}{dT^2} = \frac{\Delta H_v}{RT^2}$ (d) $\frac{d\ln P}{dT} = \frac{-\Delta H_v}{RT}$

6. The heat of combustion of carbon CO_2 is -393.5 kJ/mol. The heat released upon formation of 35.2 g of CO_2 from carbon and Oxygen gas is
   a. +315 kJ
   b. -630 kJ
   c. -3.15 kJ
   d. -315 kJ

7. Which of the following statements is correct for the spontaneous adsorption of a gas?
   a. ΔS is negative and, therefore ΔH should be highly positive.
   b. ΔS is negative and, therefore ΔH should be highly negative.
   c. ΔS is Positive and, therefore ΔH should be highly negative.
   d. ΔS is Positive and, therefore ΔH should be highly Positive.

8. For the reaction, $X_2O_{4\,(l)} \rightarrow 2XO_{2\,(g)}$ $\Delta U = 2.1$Kcal, $\Delta S = 20$cal K^{-1} at 300K. Hence, ΔG is
   a. 2.7 Kcal
   b. -2.7 Kcal

c. 9.3 Kcal
d. -9.3 Kcal

9. A reaction having equal energies of activation for forward and reverse reactions has
   a. $\Delta H = 0$
   b. $\Delta H = \Delta G = \Delta S = 0$
   c. $\Delta S = 0$
   d. $\Delta G = 0$

10. When 5 litres of gas mixture of methane and propane is perfectly combusted at 0®C and 1 atmosphere, 16 litres of oxygen at the same temperature and pressure is consumed. The amount of heat released from this combustion in kJ (ΔH_{comb} (CH_4) = 890 kJ mol^{-1} , and ΔH_{comb} (C_3H_8) = 2220 kJ mol^{-1}) is
    a. 38
    b. 317
    c. 477
    d. 32

11. Mixture of chloroxylenol and terpineol acts as
    a. Antiseptic
    b. Antipyretic
    c. Antibiotic
    d. Analgesic

12. Which of the following is analgesic?
    a. Streptomycin
    b. Chloromycetin
    c. Novalgin
    d. Penicillin

13. Bithional is generally added to the soaps as an additive to function as a/an
    a. Buffering agent
    b. Antiseptic
    c. Softener
    d. Dryer

14. Artificial sweetener which is stable under cold conditions only is
    a. Saccharine
    b. Sucralose
    c. Aspartame
    d. Alitame

15. Antiseptics and disinfectants either kill or prevent growth of microorganisms. Identify which of the following statements is not true.
    a. Dilute solutions of boric acid and hydrogen peroxide are strong antiseptics.
    b. Disinfectants harm the living tissues.
    c. A 0.2 % solution of phenol is an antiseptic while 1 % solution acts a disinfectant.
    d. Chlorine and iodine are used as strong disinfectants.

16. Dettol is the mixture of
    a. Chloroxylenol and bithionol
    b. Chloroxylenol and terpineol
    c. Phenol and iodine
    d. Terpineol and bithiniol

17. Chloroamphenicol is an
    a. Antifertility drug
    b. Antihistaminic
    c. Antiseptic and disinfectant
    d. Antibiotic broad spectrum

18. Which one of the following is employed as Antihistamine?
    a. Chloramphenicol
    b. Diphenylhydramine
    c. Norothindrone
    d. Omeprazole

19. Which one of the following is employed as a tranquilizer drug?
    a. Promethazine
    b. Valium
    c. Naproxen
    d. Mifepriston

20. Which one of the following is employed as a tranquilizer?
    a. Naproxen
    b. Tetracycline
    c. Chlorpheninamine

d. Equanil

21. Chloropicrin is obtained by the reaction of
    a. Steam on carbon tetrachloride
    b. Nitric acid on chlorobenzene
    c. Chlorine on picric acid
    d. Nitric acid on chloroform

22. Which of the following forms cationic micelles above certain concentration?
    a. Sodium dodecyl sulphate
    b. Sodium acetate
    c. Urea
    d. Cetyltrimethylammonium bromide

23. Grammexane is
    a. Bromobenzene
    b. Benzyl chloride
    c. Chlorobenzene
    d. Benzene hexachloride

24. The decomposition of organic compounds, in the presence of Oxygen and without the development of odiferous substances, is called
    a. Nitrification
    b. N_2 – fixation
    c. Decay
    d. Dentrification

25. Aspirin is an acetylation product of
    a. m-Hydroxybenzoic acid
    b. o-Dihydroxybenzene
    c. o-Hydroicbenzoic acid
    d. p-Dihydroxybenzene

26. Which of the following can possibly be used as analgesic without causing addiction and moon modification?
    a. Diazepam
    b. Tetrahydrocatinol
    c. Morphine
    d. N-Acetyl-para-aminophenol

27. Diazo coupling is useful to prepare some
    a. Pesticides
    b. Dyes
    c. Proteins
    d. Vitamins

28. Which one of the following statements is not true?
    a. Ampicillin is a natural antibiotic
    b. Aspirin is both analgesic and antipyretic
    c. Sulphadiazine is a synthetic antibacterial drug
    d. Some disinfetants can be used as antiseptics

29. On hydrolysis of starch, we finally get
    a. Glucose
    b. Fructose
    c. Both (a) and (b)
    d. Sucrose

30. The couplings between base units of DNA is through
    a. Hydrogen bonding
    b. Electrostatic bonding
    c. Covalent bonding
    d. Van der Waals forces

31. Enzymes take part in a reaction and
    a. Decrease the rate of a chemical reaction
    b. Increase the rate of a chemical reaction
    c. Both (a) and (b)
    d. None of these

32. An example of biopolymer is
    a. Teflon
    b. Neoprene
    c. Nylon – 66
    d. DNA

33. Chemically considering, digestion is basically
    a. Anabolism
    b. Hydrogenation
    c. Hydrolysis
    d. Dehydrogenation

34. Which of the following statements about enzymes are true?
    a. Enzymes catalyse chemical reactions by increasing the activation energy
    b. Enzymes are highly specific both in binding chiral substrates and in catalysing their reactions.
    c. Enzymes lack in nucleophilic groups.
    d. Pepsin is proteolytic enzyme.

35. The α – D – glucose and β-D-glucose differ from each other due to difference in carbon atom with respect to its
    a. Number of OH groups
    b. Size of hemiacetal ring
    c. Conformation
    d. Configuration

36. The oxidation of glucose is one of the most important reactions in a living cell. What is the number of ATP molecules generated in cells from one molecule of glucose?
    a. 28
    b. 38
    c. 12
    d. 18

37. The secondary structure of a protein refers to
    a. Regular folding patterns of continuous portions of peptide chain
    b. Three-dimensional structure, specially the bond between amino acid residues that are distant from each other in the polypeptide chain
    c. Mainly denaturated proteins and structures of prosthetic groups.
    d. Linear sequence of amino acid residues in the polypeptide chain.

38. The function of enzymes in the living system is to
    a. Catalyse biochemical reactions
    b. Provide energy
    c. Transport oxygen
    d. Provide immunity

39. Haemoglobin is
    a. a Vitamin
    b. a carbohydrate
    c. an enzyme
    d. a globular protein

40. Glucose molecule react with X number of molecules of phenyl hydrazine to yield osazone. The value of X is
    a. Two
    b. One
    c. Four
    d. Three

41. The number of molecules of ATP produced in the lipid metabolism of a molecule of palmatic acid is
    a. 56
    b. 36
    c. 130
    d. 86

42. Which of the following is the sweetest sugar?
    a. Fructose
    b. Glucose
    c. Sucrose
    d. Maltose

43. Mg is present in
    a. Chlorophyll
    b. Haemoglobin
    c. Vitamin – D
    d. Vitamin – B

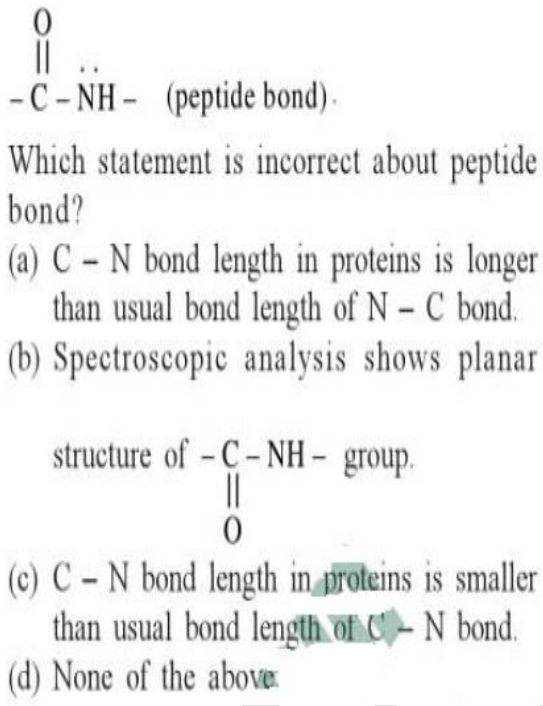
44. Which one is responsible for production of energy in bio-reaction?
    a. Thyroxine
    b. Adrenaline
    c. Oestrogen
    d. Progesterone

45. The α – D – glucose and β-D-glucose are
    a. epimers
    b. anomers
    c. enantiomers

d. diastereomers

46. Which of the following is correct?
    a. Cycloheptane is an aromatic compound
    b. Diastase is an enzyme
    c. Acetophenone is an eyher
    d. All of these

47.



$$-\overset{\overset{O}{\|}}{C}-\overset{..}{NH}-$$ (peptide bond).

Which statement is incorrect about peptide bond?

(a) C – N bond length in proteins is longer than usual bond length of N – C bond.

(b) Spectroscopic analysis shows planar structure of $-\overset{\overset{O}{\|}}{C}-NH-$ group.

(c) C – N bond length in proteins is smaller than usual bond length of C – N bond.

(d) None of the above

48. Which is the correct statement?
    a. Starch is a polymer of α-glucose
    b. Amylose is a component of cellulose
    c. Proteins are composed of only one type of amino acid
    d. In cyclic structure of fructose, there are four carbons and one oxygen atom.

49. Which of the following is correct about H-bonding in nucleotide?
    a. A-T, G-C
    b. A-G, T-C
    c. G-T, A-C
    d. A-A, T-T

50. Which is not true statement?
    a. α- carbon of α- amino acid is asymmetric
    b. All proteins are found in L-form
    c. Human body can synthesise all proteins they need.
    d. At pH=7 both amino and carboxylic groups exist in ionized form.