BIO-CHEMISTRY
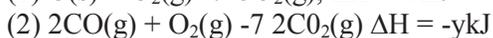
1. Which of the following has net dipole moment :
(A) CCl_4
(B) BF_3
(0) NH_3
(D) CO_2

2. When milk is converted to curd its entropy :
(A) Increases
(B) Decreases
(C) Remains the same'
(D) None of the above

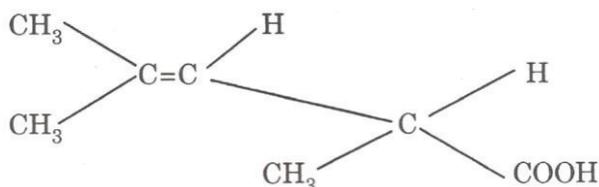3. Given that :
(1) $C(s) + O_2(g) -7 CO_2(g)$, $\Delta H = -xkJ$
(2) $2CO(g) + O_2(g) -7 2CO_2(g)$ $\Delta H = -ykJ$
The enthalpy of formation of carbon monoxide will be :
(A) $y - 2x$
(B) $(2x - y)/2$
(C)· $(y - 2x)/2$
(D) $2x - y$

4. What type of isomerism the following compound can exhibit?

(A) Geometrical
(B) Geometrical and optical
(C) Optical
(D) Tautomerism

5. The enzyme aldolase catalyses:
(A) formation of fructose-6-phosphate from glucose-6-phosphate
(B) oxidation of aldehyde group of glucose
(C) conversionofglyceraldehyde-S'phosphateto dihydroxyacetonephosphate
(D) formation of dihydroxyacetonephosphate and glyceraldehydephosphate from fructose 1, 6-bisphosphate

6. Carbohydrate chain is attached ·to glycophorin at
(A) 16 residue
(B) 17 residue
(C) varies between 16-17
(D) 26 residues

7. G-protein is :
(A) unimeric

(B) bimeric
(C) trimeric
(D) tetrameric

8. Membrane proteins are :
(A) symmetrically placed
(B) asymmetrically placed
(C) aligned diagonally
(D) arranged in zig-zag manner

9. The shape of cell may not be fixed (i.e. it changes) in :
(A) lactobacillus
(B) chlamydomonas
(C) amoeba
(D) spirochaetes

10. Cardiolipin is a membrane lipid and can be seen in :
(A) mitochondria
(B) chloroplast
(C) bacteria
(D) all of the above

11. ATPase an enzyme needed for muscle contraction is located in :
(A) actin
(B) troponin
(C) myosm
(D) all of the above

12. Ribozyme is alan
(A) enzyme
(B) nucleic acid
(C) protein
(D) both (A) and (B) above

13. Uniformly labelled C14-oxaloacetate is condensed with unlabelled acetyl-CoA.
After a single run around the TCA cycle back to -oxaloacetate, what fraction
of original radioactivity will be found in the oxaloacetate ?
(A) all
(B) 3/4
(C) 1/2
D) 1/4

14. An amino acid which is both ketogenic and glucogenic is
(A) tyrosine
(B) alanine
(C) leucine
(D) glutamic acid

15. You have just consumed a meal containing 200 g of carbohydrate, 40 g protein,
4:0 g fat and 20 g ethanol. How many kilo calories have you taken in

(A) 960
(B) 1040
(C) 1250
(D) 1530

16. Retro viruses are being used as vectors for the·first gene therapy experiments, what properties of retro viruses have made them appropriate for this use:
(A) the ability to insert into the genes
(B) the ability to cause transcription of the genes they carry
(C) the ability to infect cells
(D) all of the above

17. Restriction fragment length polymorphism (RFLP) is a method to
(A) amplify DNA
(B) identify individuals
(C) regulate gene expression
(D) sequence DNA

18. Restriction enzymes cleave specific sequence in
(A) single stranded DNA
(B) single stranded RNA
(C) double stranded DNA
(D) double stranded RNA

19. The normal level of SGOT is
(A) 8-20 IU/lit
(B) 20-30 IU/lit
(C) 13-18 IU/lit
(D) 1-4 IU/lit

20. The role of topoisomerase is to :
(A) initiate transcription
(B) induce negative' supercoiling
(C) induce translation
(D) induce positive supercoiling

21. RNA polymerase binds to DNA installing itself to about (-base pairs)
(A) 60
(B) 65
(C) 75
(D) none of the above

22. In case of protein formation (translation), GTP hydrolysis is carried out by:
(A) L7 and L12 proteins of 50S subunit
(B) L7 and L17 proteins of 40S subunit
(C) L7 and L9 protein of 30S subunit
CD) L9 and L19 protein of 50S subunit

23. The % of mammalian DNA coding for protein is
(A) 3%

(B) 4%
(C) 2%
(D) 1%

24. Photosystem I is
(A) a single unit
(B) an assembly of 13 polypeptides
(C) polypeptide chain and copper ions
CD) an assembly of 13 polypeptide chain and lipids

25. I,n Addison's disease antibodies are formed against self:
(A) chief cells
(B) βcells
(C) Adrenal cells
(D) Lymph cells

,26. Xenobiotics are :
(A) natural compounds
(B) food materials
(C) proteins
(D) non-naturally occurring

27. Up to 80% diseases in developing countries can be .linked to :
(A) air pollution
(B) soil pollution
(C) water pollution
(D) thermal pollution

28. In case of SDS-PAGE, proteins are separated on the basis of :
(A) size only
(B) charge only
(C) both size' and charge
CD) none of the above

29. Northern blotting was. devised by :
(A) EM Southern
(B) Hogness and Grunstein
(C) Allwine
CD) Toubin

30. Henderson-Hasselbalch equation can be stated as
(A) $pH = pK + log \{base\}/\{acid\}$
(B) $pH = pK + log \{saltl/lacid\}$
(C) $pK = pH + log \{base\}/\{acid\}$
(D) $pK = pH + log \{saltl/Iacid\}$

31. SDS disrupts protein structure by interfering with:
(A) hydrogen bonds
(B) electrostatic interactions
(C) hydrophobic interactions
(D) covalent bonds

32. 'The vitamins absorbed from intestine along with fats are:
(A) A and D
(B) A and B
(C) A and C
(D) 13 andD)

33. Methyl hydroxyl benzene is less acidic than phenol because of :
(A) resonance effect
(B) resonance and inductive effect
(C) hyperconjugation
(D) none of the above

34. pH of a solution prepared by mixing equal volumes of two solutions with pH
6 and 3 respectively is
(A) 4.5
(B) 4.0
(C) 4.3
(D) 3.3

35. Find the odd man out
(A) lactose
(B) glucose
(C) mannose
(D) galactose

36. Asmuggler could not carry gold by depositing iron on the gold surface because:
(A) gold has higher reduction potential than iron
(B) gold is dense than iron
(C) gold has less standard reduction potential than iron
.(D) iron rusts

37. Proteins absorb maximally at 280 nm due to presence of :
(A) peptide bonds
(B) aliphatic amino acids
(C) aromatic amino acids
(D) proline

38. How many absorption peaks. one would expect to get on NMR spectra of
benzene?
 (A) 6
(B) 1
(C) 2
(D) 5

39. The phase active in most cytogenetic function is :
(A) pachytene
(B) M phase
(C) interphase
(D) . meosis

40. The law of limiting factors for photosynthesis was enunciated by :
(A) Robert Hill
(B) Calvin
(C) Kranz
(D) Blackman

41. The most abundant carbohydrate in nature is
(A) cellulose
(B) starch
(C) sucrose
(D) glycogen

42. The passive absorption of mineral salts is not dependent on
(A) Osmosis.'
(B) Diffusion
(C)· Donnan equilibrium
(D) Ion exchange

43. A trace element for plant is
(A) potassium
(B) phosphorus
(C) zmc
(D) none of the above

44. The rate of transpiration directly depends on
(A) temperature
(B) vapor pressure gradient
(C) negative turgor pressure and light
(D) diffusion pressure deficit

45. The water potential and osmotic potential of pure water are
(A) 100 and zero
(B) zero and zero
(C) 100 and 100
(D) 200 and 100

46. Most of the neurons of our body are
(A) unipolar
(B) bipolar
(C) multipolar
(D) pseudopolar

47. Blood volume of human body is maintained by a hormone secreted by
(A) liver
(B) kidney
(C) heart
(D) brain

48. Which 'is derived from ectoderm?
(A) epidermis

(B) spinal cord
(C) retina
(D) all of the above

49. The early stage human embryo distinctly possesses
(A) gills
(B) gill slits
(C) extra ear (pina)
(D) eye brows

50. The relationship between sea anemone and hermit crab is called
(A) symbiosis
(B) mutualism
(C) commensalisms
(D) none of the above

51. Largest reserve of sulphur is
A) atmosphere
(B) pond
(C) ocean
D) lake

52. An unorganized mass of cell is called
(A) totiopotent
(B) explant
(C). callus
(D) corax

53. In case of incomplete dominance F2 generation have
(A) genotype ratio equal to .phenotype ratio
CB) genotype ratio is 3 : 1
CC) phenotype ratio is 3 : 1
(D) none of the above

54. Euploidy is a term applied for those mutations in which
(A) there is multiplication of chromosome number
(B) involves addition of a complete set of chromosome
CC) there is loss of few chromosomes
CD) none of the above

55. Webbed neck is a characteristic of :
(A) XXX
(B) YY
(C) X and Y
(D) XO

56. RBC placed in 0.5% NaCl solution will show
 (A) bursting
(B) crenation
(C) plasmolysis
CO) turgidity

57. In z-DNA the distance (A) between imaginary aXIS and sugar phosphate
IS :
(A) 10
(B) 20
(C) 9.4
(D) 9

58. The term lipid was coined by :-
(A) J.J. Berzellius
(B) Mulder'
(C) Bloor
(D) Baylis

59. The genetic information for the construction of one whole protein is contained
In :
(A) chromosome
(B) codon
(C) gene
(D) three nucleotide

60. Antigenic determinants bind to which protein of an antibody:
(A) variable regions
(B) constant regions
(C) only light chain
(D) only heavy chain