Entry Test Model Paper

Government College University Lahore
MS Forensic Chemistry

Total Marks 100 Time Allowed 2 Hr

Name_____ Roll/Form No. _____

Section-I

Choose the correct answer/fill-in the blanks with the correct answer given below each question. (1x 40 Marks)

1. When one mole of methane is burnt --------- moles of H_2O and CO_2 are produces at STP.

   a) 1 b) 2 c) 3 d) 4

2. pH of pure water is:

   a) 14 b) zero c) 6.4 d) 7

3. Oxides of alkali metals are:

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

4. The sour taste of fruits turns sweet on ripening because:

   a) new aldehydes are synthesized b) carbohydrates are synthesized
   c) organic acids are converted into sugars d) none of above happens

5. Non-coding part of a gene in eukaryotes is called:

   a) interferon b) intron c) exon d) neutron

6. Simplest organic compounds are:

   a) alcohols b) hydrocarbons c) benzene d) alkyl halides

7. Which of the following is the strongest acid?

   a) CH_3-CH_2-COOH b) CH_3-COOH c) I-CH_2-COOH
   d) Cl_3C-COOH

8. The pair of optical isomers related to each other as mirror image of each other are called:

a) anomers b) metamers c) conglomers d) enentiomers

9. Chemical name of vitamin C is:

a) ascorbic acid b) aspartic acid c) Thiamine d) malic acid

10. All amino acid found in proteins are:

a) L-amino acids b) D- amino acids c) aliphatic amino acids
d) aromatic amino acids

11. Monosaccharides are:

a) thioesters b) polyhydroxy aldehydes and ketones c) carboxylates
d) none of theses

12. pH of blood is maintained at 7.4 mainly because of buffering action of:

a) dissolved CO_2 b) hemoglobin c) serum proteins d) bile acids

13. Aqueous solution of Na_2CO_3 is:

a) alkaline b) acidic c) neutral d) just like water

14. Major contributor to the Global Green House Gases is:

a) methane b) CO_2 c) ozone d) SO_2

15. Which of the following mineral acids is the strongest?

a) H_2CO_3 b) H_2SO_4 c) HNO_3 d) $HClO_4$

16. A peculiar smell in the breath of diabetics is due to presence of high level of ------

a) glucose b) insulin c) acetone d) CO_2

17. Petroleum ether is:

a) dimethyl ether b) diethyl ether c) ter-butyl methyl ether
d) a fraction of hydrocarbons obtained from factional distillation of petroleum

18. For a spontaneous reaction to occur the value of ΔG should be:

a) positive b) negative c) zero d) absolute zero

19. Any change is DNA sequence is called:

a) restriction b) rotation c) mutation d) deletion

20. Which of the following is called power house of a cell?

a) nucleus b) mitochondria c) ribosome d) lysosome

21. Chemical name of table salt is:

a) sodium chloride b) calcium acetate c) sodium bicarbonate
d) none of these

22. The microorganisms that cause disease in body are called:

a) parasite b) fungi c) pathogens d) pyrogens

23. Antibody to -------- is like substrate to an enzyme.

a) mutagen b) virion c) antigen d) none of these

24. Which acid is produced at the time of lightening in atmosphere?

a) sulphuric acid b) amino acid c) nitric acid d) acetic acid

25. Sugar is a disaccharide chemically called:

a) maltose b) dextrose c) sucrose d) cellobiose

26. If a liquid A is more volatile than liquid B then:

a) intermolecular forces in liquid A are stronger than those in liquid B
b) intermolecular forces in liquid B are stronger than those in liquid A
c) intermolecular forces in liquid A are not very different from those in liquid B
d) comparison is irrelevant

27. ------- spectroscopy is the technique used to determine molecular mass of a compound.

a) Mass b) NMR c) UV d) IR

28. In disease conditions the rate of ---------- reactions increase in the body.

a) catabolic b) anabolic c) parabolic d) all of these

29. Number of moles per dm^3 of a solution is called:

a) mole fraction b) molality c) molarity d) solubility

30. Double helical structure of DNA is stabilized by:

a) salt bridges b) London forces c) hydrophobic interactions
d) hydrogen bonding

31. Which gas is the lightest gas?

a) Helium b) Hydrogen c) Oxygen d) Nitrogen

32. Which of the following is an acidic solution?

a) milk of magnesia b) vinegar c) saline solution d) none of these

33. The most electronegative element of the periodic table is:

a) Uranium b) Cesium c) Oxygen d) Fluorine

34. Number of --------in a species is constant.

a) chromosomes b) nucleotides c) proteins d) all of these

35. If equilibrium constant of a reversible reaction is very high, one the products of the reaction in forward direction will be very----------.

a) unstable b) stable c) moderately stable d) highly unstable

36. Entropy is a measure of ----------.

a) stability b) instability c) inertness d) randomness

37. In gel electrophoresis proteins are separated on the basis of:

a) charge difference b) charge to mass ratio c) mass difference
d) voltage applied

38. In lungs oxygen enters in blood by a process called ----------.

a) osmosis b) diffusion c) endosmosis d) effusion

39. Cholesterol belongs to a class of compounds called:

a) vitamins b) glycoproteins c) lipids d) polysaccharides

40. Penicillin is :

a) an antibody b) an antibiotic c) cytokine d) none of these

Section-II

Which of the following is True or False? (1x10 Marks)

a. Zero group elements in the periodic table are also called halogens.

b. Glucose, fructose and ribose are related to each other as isomers.

c. According to second law of thermodynamics the energy of universe is increasing.

d. Fehling solution is use to detect presence of reducing sugars.

e. Glycogen is a glycoprotein.

f. Enzymes are biocatalysts.

g. A reaction brought about by passing electric current through the solution of an electrolyte is called catalysis.

h. Starch to glucose is like protein to peptide.

i. Atomic spectra are line spectra.

j. RNA is the genetic material in some of the viruses.

Section-III

What is meant by the following terms? (Marks 2x10)

1) An isomer 2) Buffers 3) An isotope 4) An optically active compound
5) Transition metals 6) Chromatin 7) Chromatography 8) Hydrolases
9) Radioactivity 10) A peptide

Section-III

Answer briefly the following questions. Each question carries 5 Marks.

1. What makes water the best solvent?
2. What are redox reactions?
3. What is the difference between DNA and RNA? Enumerate their types.
4. What is meant by broad spectrum antibiotics?
5. Explain the term metabolism.
6. Why atomic spectra are not continuous?

   OR

   What is the difference between Gram positive and Gram negative bacteria?