Question Booklet No. : .....

ENTRANCE TEST-2025

SCHOOL OF BIOLOGICAL SCIENCES

CLINICAL BIOCHEMISTRY

Total Questions : 60 **Question Booklet Series** **A**

Time Allowed : 70 Minutes **Entrance Test Roll No. :** | | | | | | |

Important Instructions for Candidates :

1. Candidates shall compulsorily use only **blue/ black ball point pen.** In no case gel/ink pen or pencil should be used.
2. Compulsorily write your **entrance test roll number** in the space provided at the top of this page of the question booklet.
3. Fill up the necessary information in the spaces provided on OMR Answer Sheet including **Question Booklet Number** and **Question Booklet Series**.
4. OMR Answer Sheet has an original copy and a candidate's copy glued beneath it at the top. While making entries in the original copy, candidate should ensure that the **two copies are aligned properly** so that the entries made in the original copy against each item are exactly copied in the candidate's copy.
5. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
6. **Choose only one correct/most appropriate response** for each question among the options A, B, C and D and darken the circle of the appropriate response completely. Incompletely darkened circle is not correctly read by the OMR scanner and no complaint to this effect shall be entertained.
7. **Do not darken more than one circle of option for any question. A question with more than one darkened response shall be considered wrong.**
8. **There will be negative marking for wrong answers. Each wrong answer will lead to deduction of 0.25 marks per wrong answer from the score.**
9. Only those candidates who obtain positive score in Entrance Test shall be eligible for admission.
10. Do not make any stray mark on the OMR sheet as this may lead to errors while scanning.
11. OMR answer sheet must be handled carefully and it should not be folded or mutilated, as in such case it will not be properly evaluated by the scanning machine.
12. Use of Electronic gadgets like calculator, mobile, smart watch, blue tooth etc. is strictly prohibited.
13. Rough work, if any, should be done on the blank sheets provided with the question booklet.
14. Ensure that the OMR Sheet is signed by the Examinee as well as by the invigilator.
15. At the end of the examination, fold the OMR Sheet along the crease on the top and tear off the top strip to separate the Original OMR Sheet from the Duplicate Copy.
16. Compulsorily hand over the **Original OMR Answer Sheet** to the invigilator.
17. Candidate's can retain duplicate copy of the OMR, Question Booklet and Admit Card.
18. If any of the information in the Response Sheet/Question Paper has been found missing or not mentioned as stated above, the candidate is solely responsible for that lapse.
19. Any deficiency on the OMR shall be the responsibility of the candidate himself/herself.

1. If the terminal – OH group in aldose can be oxidised, a class of monosaccharide is produced called as :
   (A) Aldonic acid
   (B) Aldaric acid
   (C) Uronic acid
   (D) None of the above
2. Sugars that differ in configuration at only one carbon atom are called :
   (A) Glycosides
   (B) Anomers
   (C) Epimers
   (D) All of the above
3. Fatty acid with 18 carbon atoms and having 3 double bonds is :
   (A) Palmitic acid
   (B) Oleic acid
   (C) Stearic acid
   (D) Linoleic acid
4. Which of the following vitamins deficiency is responsible to cause scurvy ?
   (A) Pyridoxine
   (B) Ascorbic acid
   (C) Vitamin A
   (D) Cobalamin
5. Prosthetic groups are :
   (A) They tightly bind to enzymes and are required for their activity
   (B) They bind loosely to enzymes through hydrogen bonds
   (C) They are required by all the enzymes in the cell
   (D) All of the above
6. Which of the following statements is correct regarding the Michaelis constant, K_m ?
   (A) Has a low value to indicate a low affinity for substrate
   (B) Varies with the amount of enzyme used in measuring the reaction rate
   (C) Can be considered to a measure of the affinity of an enzyme for its substrate
   (D) None of the above
7. Reversible inhibitors reduce an enzyme activity by binding to both enzyme or enzyme substrate complex is called :
   (A) Uncompetitive inhibitors
   (B) Non-competitive inhibitors
   (C) Mixed inhibitors
   (D) Competitive inhibitors
8. Which one of the following is the best description of an enzyme ?
   (A) It increases the rate at which a chemical reaction approaches equilibrium relative to its uncatalyzed rate
   (B) It allows a chemical reaction to proceed extremely fast
   (C) It makes a reaction thermodynamically favourable
   (D) All of the above
9. Iodoacetate is a potent inhibitor of few enzymes by reacting with the amino acid residue at the active site having a functional group :
   (A) –COOH
   (B) –SH
   (C) –OH
   (D) $–NH_2$

10. In pentose phosphate pathway :
    (A) C-3 and C-4 of glucose is oxidised to CO_2
    (B) All the carbon atoms of the glucose are oxidised to CO_2
    (C) Only C-1 of the glucose is oxidised to CO_2
    (D) All of the above
11. Lesch-Nyhan syndrome is caused by a deficiency of the enzyme :
    (A) Hypoxanthine - guanine phosphoribosyl transferase
    (B) Xanthine oxidase
    (C) Adenosine deaminase
    (D) Ribonucleoside reductase
12. Beta oxidation of polyunsaturated fatty acid linoleate yields :
    (A) 8 molecules of acetyl CoA
    (B) 9 molecules of acetyl CoA
    (C) 10 molecules of acetyl CoA
    (D) CO_2 and H_2O is only formed
13. The primary physical forces for organizing lipid bilayer are :
    (A) Hydrophilic interactions
    (B) Hydrophobic interactions
    (C) Ionic interactions
    (D) van der Waals forces
14. Which one of the following statements is not true about the fluid mosaic model ?
    (A) Lipid molecules readily undergo lateral diffusion in the cell membrane
    (B) Integral membrane proteins can undergo lateral diffusion
    (C) Protein molecules in the membrane readily undergo transverse flip flop diffusion
    (D) None of the above
15. The freeze fracture method involves :
    (A) Cryofixation of the specimen by rapid freezing
    (B) Fracturing of the specimen by cleaving it with a microtome knife or breaking it
    (C) Recover of the specimen from the replica
    (D) All of the above
16. Disulphide bond formation in endoplasm reticulum is facilitated by the enzyme :
    (A) Protein disulphide isomerase
    (B) Acyl transferase
    (C) Scramblase
    (D) Choline phosphotransferase
17. The kind of structure that replicating eukaryotic DNA have :
    (A) Solenoid form
    (B) Extended nucleosome form
    (C) Naked DNA form
    (D) All of the above
18. Lagging strand in DNA is synthesized by which of the following DNA polymerase in eukaryotic cells :
    (A) DNA polymerase α
    (B) DNA polymerase β
    (C) DNA polymerase γ
    (D) DNA Polymerase ε
19. Proteins that bind to TATA box in the promoter region are called :
    (A) Enhancers
    (B) Co activators
    (C) Transcriptional activators
    (D) Transcriptional factors

20. Which one is not an inducer of an operon in bacterial cell ?
(A) Tryptophan
(B) L-Arabinose
(C) Allolactose
(D) All of the above

21. The term antibody was first described by :
(A) Edward Jenner
(B) Emil Von Behring
(C) Louis Pasteur
(D) Eli Metchnikoff

22. Which one of the following is not an antigen presenting cell ?
(A) B Lymphocyte
(B) Macrophages
(C) Dendritic cells
(D) T Lymphocytes

23. Chediak Higashi syndrome an autosomal recessive disorder is associated with a lack of :
(A) Neutrophil cells
(B) Macrophage cells
(C) Natural killer cells
(D) Dendritic cells

24. The major immunoglobulin found in the colostrum of milk in nursing mothers is :
(A) IgG
(B) IgM
(C) IgE
(D) IgA

25. Which one of the following crosses postulated by Mendel that involves only one trait ?
(A) Test cross
(B) Law of segregation
(C) Law of independent assortment
(D) None of the above

26. When two non-homologous chromosomes exchange their parts, the resulting chromosomal rearrangements are :
(A) Duplication
(B) Inversion
(C) Deletion
(D) Translocation

27. The histone protein that is not a part of a nucleosome is :
(A) H1
(B) H2a
(C) H2b
(D) H3

28. Tay Sachs disease is caused by the deficiency of the enzyme :
(A) β-Hexosaminidase
(B) Glucose-6- phosphate dehydrogenase
(C) α-Glucosidase
(D) Arylsulfatase

29. The enzymes that are used in the recombinant DNA technology are :
(A) Taq DNA polymerase
(B) Reverse Transcriptase
(C) DNA polymerase I
(D) All of the above

30. The important features of a cloning vector are :
(A) Ability to replicate in host cell
(B) Genetic marker to select for host cells containing the vector
(C) Unique restriction enzyme sites for insertional cloning
(D) All of the above

31. What is the right combination of components required for a polymerase chain reaction ?
    (A) Template DNA, Two primers, dNTPs and DNA ligase
    (B) Template DNA, Two primers, NTPs and DNA ligase
    (C) Template RNA, Two primers, NTPs and DNA polymerase
    (D) Template DNA, Two primers, dNTPs and DNA polymerase

32. Restriction endonuclease that cuts the DNA molecule at a site is called :
    (A) Palindrome sequence
    (B) Recognition sequence
    (C) Restriction maps
    (D) Sticky sites

33. The molecular mass of the smallest molecule unable to penetrate the pores of a given gel is called :
    (A) Exclusion limit
    (B) Bed volume
    (C) Void volume
    (D) None of the above

34. Two proteins having a same molecular mass and having an identical net charge at pH 7. The best way to separate these proteins are :
    (A) SDS-polyacrylamide gel electrophoresis
    (B) Native gel electrophoresis
    (C) Cation exchange chromatography
    (D) Anion exchange chromatography

35. Three dimensional images of the cells and tissues can be visualized by :
    (A) Transmission electron microscope
    (B) Scanning electron microscope
    (C) Compound microscope
    (D) Fluorescence microscope

36. Isopycnic centrifugation separates particles on the basis of :
    (A) Shape and size of particles
    (B) Time of centrifugation
    (C) Buoyant density
    (D) None of the above

37. The characteristic feature that differentiates archaebacteria from eubacteria is :
    (A) Archaebacteria are thermoacidophiles
    (B) Archaebacteria are methane producers
    (C) Archaebacteria are halophiles
    (D) All of the above

38. The main purpose of the virus is to deliver its genome into the host cell because :
    (A) To form cell membrane
    (B) To divide quickly
    (C) To increase transcription and translation
    (D) To increase lifespan of the host cell

39. Children are less affected with COVID 19 because :
    (A) Children having a very young immune system
    (B) The maternal antibodies transferred from the placenta and the antibodies in mothers breast milk offer protection
    (C) Children exposed to many novel respiratory infections may increase the antibodies against other respiratory viruses may offer some protection against COVID 19
    (D) All of the above

40. Which one of the following is not a multidrug resistant gram-positive bacterium ?
    (A) Enterococcus faecalis
    (B) Acinetobacter baumannii
    (C) Staphylococcus aureus
    (D) Staphylococcus pneumoniae

41. If the reaction is not spontaneous ΔG is :
(A) $\Delta G > 0$
(B) $\Delta G < 0$
(C) $\Delta G = 0$
(D) None of the above

42. The standard free energy change of ATP molecule in biological system is :
(A) Positive and large
(B) Negative and large
(C) Positive and small
(D) Negative and small

43. The high energy bonds which connect the phosphate groups in ATP molecule is :
(A) Covalent bond
(B) Hydrogen bond
(C) Ionic bond
(D) van der Waals forces

44. The amount of energy that is released by breaking the terminal phosphate group of ATP is :
(A) 5.3 kcal
(B) 6.1 kcal
(C) 7.0 kcal
(D) 7.3 kcal

45. The buffer which is highly elevated inside the cells is :
(A) Sodium acetate buffer
(B) Phosphate buffer
(C) Bicarbonate buffer
(D) Lysis buffer

46. The normal concentration of bilirubin in serum is :
(A) 2-3 mg/dl
(B) 0.1-3 mg/dl
(C) 0.2-1.3 mg/dl
(D) 1-2 mg/dl

47. How many grams of glucose is recommended by the WHO for glucose tolerance test ?
(A) 80-85 gms
(B) 70-75 gms
(C) 90-100 gms
(D) 100-110 gms

48. For the urine culture and urine analysis which one of the following preservatives is used :
(A) Formalin
(B) Dowicil 200
(C) Boric acid
(D) None of the above

49. Antigens for ABO and Rh blood groups are present on which type of cells ?
(A) Erythrocytes
(B) Leukocytes
(C) Thrombocytes
(D) All of the above

50. Most abundant granulated cells in human blood are :
(A) Basophils
(B) Neutrophils
(C) Eosinophils
(D) None of the above

51. Which of the following vitamins is required for the synthesis of prothrombin ?
(A) Vitamin C
(B) Vitamin D
(C) Vitamin K
(D) Vitamin A

52. Immune cells that are responsible for the initiation of acute inflammation are :

(A) Dendritic cells

(B) Kuffer cells and histiocytes

(C) Macrophages and mast cells

(D) All of the above

53. Glomerulonephritis is caused by :

(A) Viral infection

(B) Bacterial infection

(C) Genetic disorders

(D) Autoimmune disorders

54. The strong chemotactic agent released by the bacteria that helps the neutrophils to move towards the site of bacterial invasion is :

(A) Interleukin-8

(B) TNF-α

(C) Formylated methionine

(D) C5a

55. The common symptoms of Crohn's disease are :

(A) Increase appetite

(B) Weight gain

(C) Diarrhoea and abdominal pain

(D) Constipation

56. The enzyme that is involved for the digestion of proteins in stomach is :

(A) Sucrase and lipase

(B) Cellulase and maltase

(C) Lysozyme

(D) Pepsin

57. The enzyme that is responsible for the iodination of thyroglobulin is :

(A) Thyroid peroxidase

(B) Iodotyrosine deiodinase

(C) Glucose-6-phosphatase

(D) Glucose-6-phosphate dehydrogenase

58. The hormones that are released by the neurohypophysis of pituitary are :

(A) Adrenocorticotropin, lipotropin and melanocyte-stimulating hormone

(B) Thyroid stimulating hormone, luteinizing hormone, follicle stimulating hormone

(C) Oxytocin and vasopressin

(D) Growth hormone and prolactin

59. Which one of the following muscle tissues have no striations ?

(A) Skeletal muscle

(B) Cardiac muscle

(C) Smooth muscle

(D) None of the above

60. The various steps that are involved in transmission of nerve impulse along nerve fibre are :

(A) Polarization

(B) Depolarization

(C) Repolarization

(D) All of the above

ROUGH WORK

Sr. No. 401

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

CLINICAL BIOCHEMISTRY

Question Booklet Series **A**

Total Questions : **60**
Time Allowed : **70 Minutes**

Roll No. : | | | | | | |

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SEAL

1. Which of the following is not a mucopolysaccharide ?
   (A) Heparin
   (B) Chondrotin sulphate
   (C) Hyaluronic acid
   (D) Inulin

2. The total DNA comprises of what amount of cytoplasmic DNA in cells ?
   (A) 95-99%
   (B) 65-75%
   (C) 45-50%
   (D) 1-5%

3. Cobalt containing vitamin is :
   (A) Vitamin B_2
   (B) Vitamin B_6
   (C) Vitamin B_{12}
   (D) Vitamin B_6

4. Which of the following is not a factor responsible for denaturation of Proteins ?
   (A) pH change
   (B) Organic solvents
   (C) Heat
   (D) Charge

5. The coenzyme is :
   (A) Often a metal
   (B) Always a protein
   (C) Often a vitamin
   (D) Always an organic compound

6. Blocking of enzyme action by blocking its active sites is :
   (A) Allosteric Inhibition
   (B) Feedback Inhibition
   (C) Competitive Inhibition
   (D) Non-competitive Inhibition

7. Specificity of protein in enzyme action depends upon :
   (A) Active sites
   (B) Km constant
   (C) Linear sequence of amino acids
   (D) Turn over number

8. Enzymes exist in the cells as :
   (A) Solution
   (B) Crystals
   (C) Solids
   (D) Colloids

9. Which of the following will yield glucose on hydrolysis ?
   (A) Sucrose
   (B) Lactose
   (C) Maltose
   (D) Raffinose

10. All the following are true about Phenylketonuria except :
   (A) Deficiency of phenylalanine hyrdroxylase
   (B) Mental retardation
   (C) Increased urinary excretion of P-hydroxy-phenyl pyruvic acid
   (D) Decreased serotonin formation

11. Protein anabolism is stimulated by :
   (A) ACTH
   (B) Testosterone
   (C) Glycogen
   (D) Epinephrine

12. Lipids play a crucial role in the formation of myelin, which is essential for :
   (A) Muscle contraction
   (B) Nerve impulse transmission
   (C) Blood clotting
   (D) Bone growth

13. Which of the phase of mitosis is longest ?
    (A) Telophase
    (B) Anaphase
    (C) Metaphase
    (D) Prophase
14. What is true about peroxisomes ?
    (A) Double membranous
    (B) Oxidase synthesizes H_2O_2
    (C) Catalase breakdown H_2O_2
    (D) Both (B) and (C)
15. All the following substances pass through cell membrane except :
    (A) O_2
    (B) H_2O
    (C) CO_2
    (D) H^+
16. Which cell organelle is present in both prokaryotic and eukaryotic cell ?
    (A) Endoplasmic reticulum
    (B) Mitochondria
    (C) Ribosomes
    (D) All of the above
17. Photochemical reaction occurs in :
    (A) The plasma membrane of green plants
    (B) The membrane of lysosomes
    (C) The outer membrane of mitochondria
    (D) The thylakoid membrane
18. How many ATP molecules are required for the conversion of one N2 to $2NH4^+$ during biological oxidation N_2 fixation ?
    (A) 8 ATP
    (B) 12 ATP
    (C) 10 ATP
    (D) 16 ATP
19. Triple response radical swelling, inhibition of elongation of epicotyl, horizontal growth of epicotyl is shown by dark grown pea seedlings in presence of which plant hormone ?
    (A) Ethylene
    (B) Auxin
    (C) Cytokinin
    (D) Insulin
20. The movement of water and minerals through xylem is explained by the :
    (A) Pressure flow theory
    (B) Translocation theory
    (C) Bulk flow theory
    (D) Cohesion tension theory
21. Independent assortment of genes occurs due to the orientation of chromosome at :
    (A) metaphase of mitosis
    (B) metaphase I of meiosis
    (C) metaphase II of meiosis
    (D) any phase of cell division
22. A normal couple has seven children (2 daughters & 5 sons). Three of the sons suffer from a hereditary disorder but none of the daughters is affected. Which is the inheritance type ?
    (A) Sex limited recessive
    (B) Autosomal dominant
    (C) Sex linked dominant
    (D) Sex linked recessive

23. Match the correct :

P.	Sex linked	1. Baldness
Q.	Sex influenced	2. Acquired immune deficiency syndrome
R.	Sex limited	3. Klinefelter's syndrome
		4. Haemophilia
		5. Tuft of hairs (hypertrichosis on pinna)

(A) P-4, Q- 1, R-5

(B) P-5, Q-3, R-2

(C) P-5, Q-1, R-3

(D) P-4, Q-3, R-2

24. What would be the best term to describe effect of one gene on another in a way that one would hide the effect of another on a phenotype ?

(A) Pleiotropy

(B) Homeostasis

(C) Epistasis

(D) Hyperstasis

25. DNA helicases in E. Coli :

(A) moves in the direction opposite of replication fork

(B) binds with template of the leading strand

(C) is a hexameric protein with ATPase activity

(D) catalyzes formation of primer

26. The Shine-Dalgarno sequence is responsible for :

(A) binding of RNA Polymerase to gene during transcription

(B) binding DNA Polymerase to origin of replication during DNA replication

(C) binding of ribosome to mRNA during intiation of translation

(D) binding of Snurps during splicing

27. Degeneracy of genetic code implies that :

(A) the codons degenerate after the synthesis of polypeptide chain

(B) more than one codon can code for one amino acid

(C) some codons degenerate as they are not involved in coding for any amino acid

(D) one codon can code for more than one amino acid

28. In E. coli which of the following codons are recognized by the release factor RF1 ?

(A) UAG and UGA

(B) UAA and UGG

(C) UAG and UAA

(D) UAG and UUA

29. Which of the following is viral disease ?

(A) Hepatitis

(B) Influenza

(C) Measles

(D) All of the above

30. The Causative agent of Cholera is :

(A) Vibrio cholera

(B) Salmonella Typhi

(C) Bacillus Anthracis

(D) None of the above

31. Viruses which cause lysis of bacteria are known as :

(A) lysogenic

(B) lytic

(C) lipolytic

(D) lysozymes

32. HIV is :
(A) Retrovirus
(B) Single stranded RNA genome
(C) Both (A) and (B)
(D) None of the above

33. Inflammation are characterized by :
(A) Pain
(B) Redness
(C) Swelling
(D) All of the above

34. The antibody present on the surface of mature B-Cell :
(A) IgM
(B) IgG
(C) IgA
(D) None of the above

35. Which immunoglobin is involved in hypersensitivity reactions ?
(A) IgE
(B) IgD
(C) IgA
(D) IgG

36. Thrombosis :
(A) is the flow of blood in arteries or veins is impeded
(B) it cause blockage in the artery and vein
(C) both (A) and (B)
(D) none of the above

37. What is the purpose of using a selectable marker in recombinant DNA technology ?
(A) To mark the location of a specific gene
(B) To facilitate the cloning process
(C) To distinguish recombinant from non-recombinant cells
(D) To induce mutations in the target gene

38. What is the role of a host organism in gene cloning ?
(A) To produce the gene of interest
(B) To provide a suitable environment for gene expression
(C) To act as a template for DNA synthesis
(D) To transport recombinant DNA into other organisms

39. Which of the following statements regarding Ti plasmids is true ?
(A) Ti plasmids are found naturally in plant cells
(B) Ti plasmids primarily induce the formation of leaves in infected plants
(C) Ti plasmids transfer genes responsible for opine synthesis into plant cells
(D) Ti plasmids primarily infect animal cells instead of plant cells

40. Golden Rice is genetically engineered to produce higher levels of which essential nutrient ?
(A) Vitamin C
(B) Iron
(C) Vitamin E
(D) Beta-carotene (provitamin A)

41. In thyroid function tests, what does an elevated level of free thyroxine (FT4) indicate ?
(A) Hyperthyroidism
(B) Hypothyroidism
(C) Euthyroidism
(D) Thyroid cancer

42. What is the significance of an elevated level of serum alkaline phosphatase (ALP) in liver function tests ?
(A) Hepatocellular damage
(B) Cholestasis or obstruction of bile flow
(C) Impaired protein synthesis
(D) Liver cirrhosis

43. Which lipid abnormality is associated with an increased risk of developing atherosclerosis and cardiovascular disease ?

(A) High levels of HDL cholesterol

(B) Low levels of LDL cholesterol

(C) High levels of triglycerides

(D) Normal levels of total cholesterol

44. What is the primary purpose of a glucose tolerance test (GTT) ?

(A) To diagnose diabetes mellitus

(B) To assess pancreatic function

(C) To evaluate kidney function

(D) To monitor glycogen storage disorders

45. What is the function of the mucociliary escalator in the respiratory system ?

(A) Regulation of airflow into the lungs

(B) Exchange of oxygen and carbon dioxide in the alveoli

(C) Removal of foreign particles and pathogens from the airways

(D) Control of respiratory rate and depth

46. What is the primary function of the gall bladder in the digestive system ?

(A) Production of digestive enzymes

(B) Storage and concentration of bile

(C) Absorption of nutrients

(D) Regulation of gastric acid secretion

47. Which of the following hormones stimulates the release of bile from the gall bladder and pancreatic enzymes from the pancreas ?

(A) Gastrin

(B) Secretin

(C) Ghrelin

(D) Insulin

48. Which hormone is produced by the adrenal medulla and is involved in the body's response to stress, regulating heart rate and blood pressure ?

(A) Cortisol

(B) Epinephrine

(C) Aldosterone

(D) Thyroxine

49. The term antibodies was discovered by :

(A) Ehrlich and Metchnikoff

(B) Karl Landsteiner

(C) Emil Von Behring

(D) Louis Pasteur

50. Exogenous antigens bind to which class of MHC molecules ?

(A) MHC-1

(B) MHC-II

(C) MHC-I

(D) All of the above

51. Which of the following represent the antigen presenting cells ?

(A) T cells, Null cells, Macrophages

(B) B cells, Macrophages, Dendritic cells

(C) Natural killer cells, Kuffer cells, Macrophages

(D) B cells, T cells, Natural killer cells

52. β-2 microglobulin is found on which MHC molecule ?

(A) MHC class I

(B) MHC class II

(C) MHC class III

(D) All of the above

53. Which of the following is soluble in water ?

(A) CS_2

(B) C_2H_5OH

(C) CCl_4

(D) $CHCl_3$

54. Hydrogen bonding is maximum in :

(A) ethanol

(B) diethyl ether

(C) ethyl chloride

(D) triethyl amine

55. The molecule which does not exhibit dipole moment is :

(A) NH_3

(B) $CHCl_3$

(C) H_2O

(D) CCl_4

56. Which one of the following is the strongest acid ?

(A) $ClO_3(OH)$

(B) $ClO_2(OH)$

(C) $SO(OH)_2$

(D) $SO_2(OH)_2$

57. Sodium dodecyl sulphate is used to separate proteins by PAGE because :

(A) It increases the solubility of proteins

(B) It gives the uniform negative charge to the proteins

(C) Increases stability of proteins

(D) It decreases the surface tension of the buffer used in electrophoresis

58. The three-dimensional images of the surface of the cells and tissue can be visualized by :

(A) Scanning electron microscope

(B) Fluorescence microscope

(C) Compound microscope

(D) Transmission electron microscope

59. The molecular mass of the smallest molecules unable to penetrate the pores of a gell is called :

(A) Void volume

(B) Exclusion limit

(C) Bed volume

(D) Internal volume

60. The forces that effect the biomolecules to sediment at the bottom of the tube is :

(A) Force of buoyancy

(B) Force of friction

(C) Centrifugal force

(D) All of the above