Biology **Holidays Homework** **Class XI**

1. A common characteristic feature of plant sieve tube cells and most of mammalian erythrocytes is
   a. Absence of mitochondria b. Presence of cell wall
   c. Presence of haemoglobin d. Absence of nucleus

2. Select one which is not true for ribosome
   a. Made of two sub units b. Form polysome
   c. May attach to m RNA d. Have no role in protein synthesis

3. Which one of these is not a eukaryote?
   a. *Euglena* b. *Anabaena* c. *Spirogyra* d. *Agaricus*

4. Which of the following dyes is best suited for staining chromosomes?
   a. Basic Fuchsin b. Safranin c. Methylene blue d. Carmine

5. Different cells have different sizes. Arrange the following cells in an ascending order of their size. Choose the correct option among the following
   i. Mycoplasma ii. Ostrich eggs iii. Human RBC iv. Bacteria
   Options: a. i, iv, iii & ii b. i, ii, iii & iv c. ii, i, iii & iv d. iii, ii, i & iv

6. Which of the following features is common to prokaryotes and many eukaryotes?
   a. Chromosomes present b. Cell wall present
   c. Nuclear membrane present d. Sub cellular organelles present

7. Who proposed the fluid mosaic model of plasma membrane?
   a. Camillo Golgi b. Schleiden and Schwann c. Singer and Nicolson d. Robert Brown

8. Which of the following statements is true for a secretory cell?
   a. Golgi apparatus is absent
   b. Rough Endoplasmic Reticulum (RER) is easily observed in the cell
   c. Only Smooth Endoplasmic Reticulum (SER) is present
   d. Secretory granules are formed in nucleus.

9. What is a tonoplast?
   a. Outer membrane of mitochondria
   b. Inner membrane of chloroplast
   c. Membrane boundry of the vacuole of plant cells
   d. Cell membrane of a plant cell

10. Which of the following is not true of a eukaryotic cell?
    a. It has 80S type of ribosome present in the mitochondria
    b. It has 80S type of ribosome present in the cytoplasm
    c. Mitochondria contain circular DNA
    d. Membrane bound organelles are present

11. Which of the following statements is not true for plasma membrane?
    a. It is present in both plant and animal cell
    b. Lipid is present as a bilayer in it
    c. Proteins are present integrated as well as loosely associated with the lipid bilayer
    d. Carbohydrate is never found in it

12. Plastid differs from mitochondria on the basis of one of the following features. Mark the right answer.
    a. Presence of two layers of membrane
    b. Presence of ribosome
    c. Presence of chlorophyll
    d. Presence of DNA

13. Which of the following is not a function of cytoskeleton in a cell?
    a. Intracellular transport b. Maintenance of cell shape and structure
    c. Support of the organelle d. Cell motility

14. The stain used to visualise mitochondria is
    a. Fast green b. Safranin c. Acetocarmine d. Janus green

15. It is said that elemental composition of living organisms and that of inanimate objects (like earth's crust) are similar in the sense that all the major elements are present in both. Then what would be the difference between these two groups? Choose a correct answer from among the following:
    a. Living organisms have more gold in them than inanimate objects
    b. Living organisms have more water in their body than inanimate objects
    c. Living organisms have more carbon, oxygen and hydrogen per unit mass than inanimate objects.
    d. Living organisms have more calcium in them than inanimate objects.

16. Many elements are found in living organisms either free or in the form of compounds. One of the following is not, found in living organisms.
    a. Silicon b. Magnesium c. Iron d. Sodium

17. Amino acids, as the name suggests, have both an amino group and a carboxyl group in their structure. In addition, all naturally occurring amino acids (those which are found in proteins) are called L-amino acids. From this, can you guess from which compound can the simplest amino acid be made?
    a. Formic acid b. Methane c. Phenol d. Glycine

18. Many organic substances are negatively charged e.g., acetic acid, while others are positively charged e.g., ammonium ion. An amino acid under certain conditions would have both positive and negative charges simultaneously in the same molecule. Such a form of amino acid is called
    a. Positively charged form b. Negatively charged form
    c. Neutral form d. Zwitterionic form

19. Sugars are technically called carbohydrates, referring to the fact that their formulae are only multiple of $C(H_2O)$. Hexoses therefore have six carbons, twelve hydrogens and six oxygen atoms. Glucose is a hexose. Choose from among the following another hexose.
a. Fructose b. Erythrose c. Ribulose d. Ribose

20. When you take cells or tissue pieces and grind them with an acid in a mortar and pestle, all the small biomolecules dissolve in the acid. Proteins, polysaccharides and nucleic acids are insoluble in mineral acid and get precipitated. The acid soluble compounds include amino acids, nucleosides, small sugars etc. When one adds a phosphate group to a nucleoside one gets another acid soluble biomolecule called
a. Nitrogen base b. Adenine c. Sugar phosphate d. Nucleotide

21. When we homogenise any tissue in an acid the acid soluble pool represents
a. Cytoplasm b. Cell membrane c. Nucleus d. Mitochondria

22. The most abundant chemical in living organisms could be
a. Protein b. Water c. Sugar d. Nucleic acid

23. A homopolymer has only one type of building block called monomer repeated 'n' number of times. A heteropolymer has more than one type of monomer. Proteins are heteropolymers made of amino acids. While a nucleic acid like DNA or RNA is made of only 4 types of nucleotide monomers, proteins are made of
a. 20 types of monomers
b. 40 types of monomers
c. 3 types of monomers
d. only one type of monomer

24. Proteins perform many physiological functions. For example, some functions as enzymes. One of the following represents an additional function that some proteins discharge
a. Antibiotics
b. Pigment conferring colour to skin
c. Pigments making colours of flowers
d. Hormones

25. Glycogen is a homopolymer made of
a. Glucose units b. Galactose units c. Ribose units d. Aminoacids

26. The number of 'ends' in a glycogen molecule would be
a. Equal to the number of branches plus one
b. Equal to the number of branch points
c. One
d. Two, one on the left side and another on the right side

27. A pure protein should normally have
a. Two ends b. One end c. Three ends d. No ends

28. Enzymes are biocatalysts. They catalyse biochemical reactions. In general they reduce activation energy of reactions. Many physico-chemical processes are enzyme mediated. Some examples of enzyme mediated reactions are given below. Tick the wrong entry
a. Dissolving CO2 in water
b. Untwining the two strands of DNA

c. Hydrolysis of sucrose d. Formation of peptide bond

29. Meiosis results in
a. Production of gametes b. Reduction in the number of chromosomes
c. Introduction of variation d. all of the above

30. At which stage of meiosis does the genetic constitution of gametes is finally decided
a. Metaphase I b. Anaphase II c. Metaphase II d. Anaphase I

31. Meiosis occurs in organisms during
a. Sexual reproduction b. Vegetative reproduction
c. Both sexual and vegetative reproduction d. None of the above

32. During anaphase-I of meiosis
a. Homologous chromosomes separate b. Non-homologous autosomes separate
c. Sister chromatids separate d. Non-sister chromatids separate

33. Mitosis is characterised by
a. Reduction division b. Equal division
c. Both reduction and equal division d. None of the above

34. A bivalent of meiosis-I consists of
a. Two chromatids and one centromere b. Two chromatids and two centromere
c. Four chromatids and two centromere d. Four chromatids and four centromere

35. Cells which are not dividing are likely to be at
a. G1 b. G2 c. Go d. S phase

36. Which of the events listed below is not observed during mitosis?
a. Chromatin condensation
b. Movement of centrioles to opposite poles
c. Appearance of chromosomes with two chromatids joined together at the centromere. d. Crossing over

37. Identify the wrong statement about meiosis
a. Pairing of homologus chromosomes
b. Four haploid cells are formed
c. At the end of meiosis the number of chromosomes are reduced to half
d. Two cycle of DNA replication occurs

38. Select the correct statement about G1 phase
a. Cell is metabolicaly inactive b. DNA in the cell does not replicate
c. It is not a phase of synthesis of macromolecules d. Cell stops growing