(2) There are 50 questions each question carries one (1) mark and all are compulsory.

(3) Read the question carefully before selecting the correct option.
1. What is the characteristic of a cyst?
   (A) The cyst walls of bacteria are not formed by thickening of cell walls
   (B) They are more resistant than endospores
   (C) It is not a resting stage
   (D) It helps that microbes to disperse easily from an unfavourable environment

2. Which membrane is considered as biological membrane?
   (A) Glycocalyx
   (B) Nuclear membrane
   (C) Cell wall
   (D) Cell membrane

3. What is true for Gram positive bacteria?
   (A) They have a lipopolysaccharide-lipoprotein phospholipid outer membrane
   (B) They don’t stain purple with crystal violet stain.
   (C) Their cell wall consists of many layers of peptidoglycan and also contain teichoic acids
   (D) Salmonella sp. is one of its example

4. The light stained and diffused region of chromatin is known as
   (A) Chromatin
   (B) None of these
   (C) Euchromatin
   (D) Heterochromatin

5. Nucleus is absent in
   (A) RBC’s only
   (B) None of these
   (C) Red Blood Cells and bacteria
   (D) RBC, Sieve cells and bacteria

6. Protein responsible for flagella and cilia movement is
   (A) Dynein
   (B) Tubulin
   (C) Actin
   (D) Myosin

7. Keratin, Vimentins, Lamin etc. are examples of
   (A) Intermediate filaments
   (B) Cell wall
   (C) Microfilaments
   (D) Microtubules

8. Which of the statement is true regarding chloroplast?
   (A) Chloroplast is responsible for the synthesis of carbohydrates
   (B) All of these
   (C) It is a double membrane bound organelle
   (D) Chloroplast is the site of photosynthesis

9. All the following substances pass through cell membrane except
   (A) O₂
   (B) H₂O
   (C) H⁺
   (D) CO₂

10. Which of the following cell organelle brings about lyses inside and outside
    the cell?
    (A) Peroxisomes
    (B) Golgi apparatus
    (C) Lysosomes
    (D) Glyoxysome
11 Semiautonomous organelle in the cell is
(A) Chloroplast  (B) Endoplasmic reticulum
(C) Peroxisomes  (D) Golgibodies

12 Continuous variations are attributed to
(A) Crossing over
(B) Chromosomal aberrations
(C) Polyploidy
(D) Mutation

13 If Golgi apparatus functions as a secretory organelle, then we would expect to find the most abundant Golgi complexes in ________.
(A) Pancreas  (B) Muscle cells
(C) Neurons  (D) RBC's

14 Which of the following organelle is involved in cell wall synthesis?
(A) Golgi apparatus
(B) Lysosome
(C) Mitochondria
(D) Chloroplast

15 The G2 phase of the cell cycle is signified by the synthesis of ________.
(A) DNA  (B) mRNA
(C) rRNA  (D) ATP

16 During metaphase mitosis chromosomes
(A) Line up at equator
(B) Break and disintegrate
(C) Undergo coiling
(D) Move towards the poles

17 The process of ingestion of fluid material by the cell through the plasma membrane is
(A) Exocytosis
(B) Adsorption
(C) Pinocytosis
(D) Absorption

18 The pairing of homologous chromosomes is called ________.
(A) Synapsis
(B) Terminalisation
(C) Tetrads
(D) Crossing over

19 One main difference between meiosis and mitosis is that during meiosis
(A) Telophase stage does not occur
(B) Mutual exchange of parts between chromatids of a chromosome takes place.
(C) The daughter cells are exactly like the parent cells
(D) Duplication of chromosomes takes place during anaphase

20 Which is the correct order of phases of meiosis?
(A) Leptotene, zygotene, pachytene, diplotene and diakinesis
(B) Diakinesis, diplotene, pachytene, zygotene and leptotene
(C) Leptotene, pachytene, zygotene, diplotene and diakinesis
(D) Leptotene, diakinesis, pachytene, diplotene and zygotene
21 Which of the following occurs in meiosis but not in mitosis?
   (A) Synapsis of homologous chromosomes
   (B) All of these
   (C) Independent assortment
   (D) Segregation of homologous chromosomes

22 Numerous chemical, physical and biological stimuli are able to convert a normal culture into a cancerous one through a process called as ________.
   (A) Translation
   (B) Replication
   (C) Transformation
   (D) Transcription

23 Cancerous cells are characterised by ________.
   (A) Normal biochemical functions
   (B) Karyotype remains normal
   (C) An uncontrolled cell growth
   (D) Controlled cell growth

24 Mitosis results in
   (A) No change in the number of chromosome
   (B) Reduction in number of chromosome
   (C) Duplication of chromosome
   (D) Increase in the cell volume

25 Secondary cell wall of plants is located ________.
   (A) Inside the Primary wall
   (B) Just beneath middle lamellae
   (C) Outside the primary wall
   (D) Inside the Plasma membrane
26 Cancer cells have which of the characteristic difference from the normal cells?
   (A) Loss of growth control
   (B) All of these
   (C) Loss of contact inhibition
   (D) Loss of motility

27 Leukemia is a
   (A) Kidney cancer
   (B) Lung cancer
   (C) Blood cancer
   (D) Soft tissue cancer

28 One of the major chemical component of cell coat, ______ a glycoprotein, is absent or drastically reduced in cancerous cells.
   (A) Chitin
   (B) None of these
   (C) Transferrin
   (D) Fibronectin

29 Active transport _______.
   (A) Releases energy
   (B) Requires energy
   (C) Produces ATP
   (D) Produces a toxic substances

30 What is not true for Plasmids?
   (A) They carry genes which allow bacteria to produce sex pilus
   (B) None of these
   (C) They are small, circular pieces of DNA
   (D) They are transferred between bacterial cells during conjugation
31 The brain of cell is
   (A) Nucleus
   (B) Cell membrane
   (C) Cytoplasm
   (D) Mitochondria

32 Mitochondria have first seen by
   (A) Robert Brown
   (B) Altmann
   (C) Robert Hooke
   (D) Lipmann

33 All organisms have cells as their basic unit and all have essentially the same
   (A) Animal cells have vacuoles
   (B) Plant cells have small vacuoles
   (C) Physiology – Biochemistry
   (D) Physiology – Anatomy

34 The main difference between animal cell and plant cell is that
   (A) Anatomy-Genetic code
   (B) Biochemistry-Genetic code
   (C) Animal cell lack rigid cell wall
   (D) Plant cell lack rigid cell wall

35 What are not considered as true cells ?
   (A) Virus
   (B) Bacteria
   (C) Fungi
   (D) Cyanobacteria

36 Food is converted to energy in
   (A) Mitochondria
   (B) Nucleolus
   (C) Nucleus
   (D) Chloroplast

37 In higher plants the shape of chloroplast is
   (A) Cup shaped
   (B) Ribbon shaped
   (C) Discoid
   (D) Girdle shaped
38. Which of the following statements are true regarding endoplasmic reticulum?
   (A) SER is involved in synthesis of lipids
   (B) All of these
   (C) ER provides structural framework to the cell
   (D) ER acts as an intracellular transporting system

39. One of the basic properties of cell is that they can respond to external
   ________.
   (A) Stimulus
   (B) Chemicals
   (C) pH change
   (D) Antigen

40. Extra nuclear DNA is found in
   (A) Endoplasmic reticulum
   (B) Nucleus
   (C) Chloroplast
   (D) Ribosomes

41. The smallest known Bacteria-Mycoplasma has ________.
   (A) No genetic material
   (B) None of these
   (C) No ribosomes
   (D) No cell wall

42. Common virus with a polyhedral shape of 20-sided icosahedrons is
   ________.
   (A) Bacteriophage
   (B) Adenovirus
   (C) TMV
   (D) HIV

43. Example of Prokaryotes, capable of photosynthetic activities are ________.
   (A) Archaeabacteria
   (B) *E. coli*
   (C) Cyanobacteria
   (D) *Bacillus sp.*

44. The term “Cell” was first used by ________.
   (A) Rudolf Virchow
   (B) De Veres
   (C) Anton van Leeuwenhoek
   (D) Robert Hooke
45 Which type of cell extensions in Prokaryotes are used to transfer DNA from one cell to another?
(A) Flagella
(B) Prostheca
(C) Pili
(D) Fimbriae

46 _______ and _______ proposed the double helix model of DNA.
(A) Brown and Virchow
(B) Fleming and Waldeyer
(C) Watson and Crick
(D) Schwann and Schleiden

47 _______ is a modern science in which genetics, physiology and biochemistry converge.
(A) Biotechnology
(B) Biochemistry
(C) Molecular biology
(D) Cell Biology

48 Limit of human eye is around _______ \( \mu m \)
(A) 90
(B) 50
(C) 10
(D) 100

49 The sedimentation constant of ribosome is generally 70S. It breaks up into two subunits whose sedimentation constants are:
(A) 60 S and 10 S
(B) 50 S and 30 S
(C) 50 S and 20 S
(D) 40 S and 30 S

50 Which is unit of asexual reproduction, that is adapted for dispersal and survival also?
(A) Cysts
(B) All of these
(C) Spores
(D) Gametes