DE-1669

B. Sc. (Biotechnology) (Sem. I) Examination
March / April - 2016
BT - 02 : Cell Biology

Time : 2 Hours] [Total Marks : 50

सूचना/Instructions :

(1) Fill up strictly the details of ~ signs on your answer book.

Name of the Examination :
B. Sc. (Biotechnology) (Sem. I)

Name of the Subject :
BT - 02 : Cell Biology

Subject Code No. : 1 6 6 9 ~ Section No. (1, 2,.....): NIL

(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.

O.M.R. Sheet भरने अनेक अनेक सूचनाओ आपेक्षीय O.M.R. Sheet-ले पाएला भएका छ।

Important instructions to fill up O.M.R. Sheet is given on back side of the provided O.M.R. Sheet.

DE-1669_A ] 1 [ Contd...
1. The brain of cell is
   (A) Cytoplasm
   (B) Mitochondria
   (C) Nucleus
   (D) Cell membrane

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

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

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

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

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

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

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

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

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

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

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

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

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

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

18 Limit of human eye is around ______μm
(A) 10
(B) 100
(C) 90
(D) 50

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

20 Which is unit of asexual reproduction, that is adapted for dispersal and survival also?
(A) Spores
(B) Gametes
(C) Cysts
(D) All of these
21 What is the characteristic of a cyst?
(A) It is not a resting stage
(B) It helps that microbes to disperse easily from an unfavourable environment
(C) The cyst walls of bacteria are not formed by thickening of cell walls
(D) They are more resistant than endospores

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

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

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

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

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

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

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

29 All the following substances pass through cell membrane except _________.
(A) \( H^+ \)
(B) \( CO_2 \)
(C) \( O_2 \)
(D) \( H_2O \)

30 Which of the following cell organelle brings about lyses inside and outside the cell?
(A) Lysosomes
(B) Glyoxysome
(C) Peroxisomes
(D) Golgi apparatus

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31. Semi-autonomous organelle in the cell is
   (A) Peroxisomes  (B) Golgibodies
   (C) Chloroplast   (D) Endoplasmic reticulum

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

50 What is not true for Plasmids?
   (A) They are small, circular pieces of DNA
   (B) They are transferred between bacterial cells during conjugation
   (C) They carry genes which allow bacteria to produce sex pilus
   (D) None of these