

Test Booklet Number

Test - 0903

Roll Number

9443

BIOLOGY

[Time : 1 Hour]

[Maximum Marks : 100]

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you answer the questions given in this Test Booklet.

1. Answers to questions in this Test Booklet are to be given on a computerised **Answer Sheet** provided to the candidate **separately**.
2. Candidate must fill up Name, Category, Test Booklet Number, Subject Code, and Roll Number in the answer sheet carefully as per instruction given.
3. This Test Booklet consists of 50 questions. All questions are compulsory and carry equal marks.
4. Each question in this Test Booklet has four possible alternative answers namely, (a), (b), (c), and (d), one of which is correct. Candidate should choose the correct answer against each question out of four alternative answers.
5. Candidate is instructed to answer the questions by **darkening (●)** with **Ball Point Pen** only in the circle bearing the correct answer.
6. Candidate should not attempt more than one answer in each question. More than one attempt in any form against a question shall be treated as incorrect.
7. Marking of answer other than darkening shall be cancelled and darkening should remain within the circle or otherwise computer shall not accept during evaluation of answer-script.
8. Rough work must not be done on the answer sheet. Use the blank space given in the Test Booklet for rough work.
9. Candidate is to handover both the Test Booklet and Answer Sheet to the Invigilator before leaving the Examination Hall.
10. **NEGATIVE MARKING** : Each question carries 2 (two) marks for correct response. For each incorrect response, $\frac{1}{2}$ (half) mark will be deducted from the total score. More than one answer indicated against a question will be deemed as incorrect response and will be negatively marked.

SET - I BIOLOGY

1. The new cells originate
 - a) from abiotic material
 - b) through the regeneration of old cells
 - c) from pre-existing cells
 - d) by bacterial fermentation
2. Cholesterol is a complex lipid and vital precursor of the following *except*
 - a) sex hormones
 - b) vitamin D
 - c) bile salts
 - d) insulin
3. One micron is equal to
 - a) one tenth of a millimetre
 - b) one hundredth of a millimetre
 - c) one thousandth of a millimetre
 - d) one millionth of a millimetre
4. The cells of permanent tissue do not divide because these are
 - a) dead
 - b) anucleate
 - c) arrested at G 1 stage
 - d) arrested at prophase
5. Which of the following is an amino acid that is found in proteins?
 - a) Adenosine
 - b) Adenine
 - c) Alanine
 - d) Linoleic acid
6. Usually the recessive character is expressed only when present in homozygous condition. However single recessive gene can express itself in human being when the gene is present on :
 - a) the X chromosome of the male
 - b) the X chromosome of the female
 - c) either on autosome or X chromosome
 - d) any autosome
7. A condition in humans in which all body cells have an extra chromosome - trisomy 21, characterised by symptoms like reduced intelligence and characteristic facial features usually occurs due to
 - a) non-disjunction during sperm formation
 - b) non-disjunction during egg cell and sperm cell formation.
 - c) non disjunction during egg cell formation
 - d) addition of an extra chromosome during meiosis of the zygote
8. Genetic drift is defined as
 - a) sum total of all the genes present in a particular population.
 - b) the frequency of dominant genotypes in a population.
 - c) the frequency of heterozygous genotypes in a population.
 - d) a random change in gene frequency of a population.

9. The antibiotic which inhibits bacterial protein synthesis by inhibiting interaction between tRNA and mRNA is
 - a) tetracycline
 - b) neomycin
 - c) erythromycin
 - d) streptomycin
10. DNA ligase is :
 - a) an enzyme that joins fragments in normal DNA replication
 - b) an enzyme involved in protein synthesis
 - c) an enzyme of bacterial origin which cuts DNA at defined base sequences
 - d) an enzyme that facilitates transcription of specific genes
11. R.Q. for fatty substances is generally
 - a) zero
 - b) one
 - c) more than one
 - d) less than one
12. The conversion of glyoxylate to glycolate occurs in
 - a) chloroplast
 - b) dictyosomes
 - c) peroxisomes
 - d) mitochondria
13. How many ATP molecules can be derived from each molecule of acetyl CoA that enters the Krebs' Cycle?
 - a) 6
 - b) 18
 - c) 12
 - d) 38
14. The elements that play prominent roles in the photolysis of water are
 - a) magnesium, calcium and chloride
 - b) magnesium, copper and chloride
 - c) manganese, potassium and calcium
 - d) manganese, calcium and chloride
15. The Sulphur bacteria do not release oxygen during photosynthesis because they do not :
 - a) reduce CO_2
 - b) use H_2O as the hydrogen donor
 - c) use light energy
 - d) photosynthesize at all
16. The protoplast in a living cell refers to :
 - a) plasma membrane and protoplasm
 - b) living contents of the cell cytoplasm and a nucleus.
 - c) vacuole protoplasm and cell wall
 - d) cytoplasm vacuole and nucleus
17. The entry of water into a cell due to osmosis causes to develop a hydrostatic pressure that pushes the cell wall. This pressure is called
 - a) wall pressure
 - b) osmotic pressure
 - c) imbibition pressure
 - d) turgor pressure

18. The function of muscle fibre in the iris is to
- give the eye its colour
 - alter the diameter of the pupil
 - change the curvature of the cornea
 - close the eyelids
19. Which one of the following pairs of hormones regulate the production of pancreatic juice and bile in the small intestine?
- Pepsin and serum
 - Chymotrypsin and trypsin
 - Cholecystokin and secretin
 - Amylase and maltase
20. An action potential arriving at the motor endplate causes release of :
- acetylcholine which traverses the neuromuscular junction
 - sodium ions which binds to sodium receptors on the muscle membrane
 - calcium ions which initiate an action potential along the muscle fibre
 - noradrenaline which increases muscle metabolic activity
21. Which is not true regarding erythrocytes present in human blood?
- They count about 5 million per cubic millimeter
 - Contain haemoglobin and carbonic anhydrase enzyme
 - Their number decreases at high altitudes
 - Produced in red bone marrow and destroyed in liver.
22. Which is not correct?
- Archaeopteryx* is connecting link between reptiles and aves
 - Hydra* is connecting link between Coelenterata and parifera
 - Duck billed platypus is connecting link between reptiles and mammals
 - Peripatus* is connecting link between Annelida and Arthropoda
23. The pollination in Pirius is
- anemophilous
 - entomophilous
 - hydrophilous
 - chiropterophilous
24. Spermiogenesis is the formation of
- spermatids from spermatogonia
 - spermatids from spermatozoa
 - spermatozoa from spermatids
 - secondary spermatocytes from primary spermatocyte
25. The wheat plant has 21 pairs of chromosomes. In which part of it the number of chromosome will be 63?
- Embryo sac
 - Nucellus
 - Stem tip
 - Endosperm

26. A natural sequence of main developmental stages in mammals is
- fertilization → cleavage → Zygote → Morula → Blastula → Gastrula
 - fertilization → Zygote → Cleavage → Morula → Blastula → Gastrula
 - fertilization → Cleavage → Zygote → Morula → Gastrula → Blastula
 - fertilization → Morula → Zygote → Blastula → Gastrula → Cleavage
27. Which of the following is not a method of vegetative propagation in plants?
- Cutting
 - Budding
 - Grafting
 - Layering
28. The strength and rigidity of cell wall is due to the substance called
- suberin
 - cellulose
 - lignin
 - pectin
29. Vexillary aestivation of corolla and diadelphous androecium are important floral characters of the plants belonging to the family:
- brassicaceae
 - fabaceae
 - solanaceae
 - liliaceae
30. A thick walled, muscular chamber containing grit found in the alimentary canal of earth worm is termed as
- crop
 - muscular pharynx
 - gizzard
 - colon
31. Preseae of 3 + 3 parianth and tricarpeal syncarpous ovary is the character of
- helianthus annuus
 - solanum nigrum
 - allium cepa
 - brassica campestris
32. The plant growth regulator which exists in gaseous form is
- auxin
 - abscisic acid
 - gibberellin
 - ethylene
33. A thorn of **Bougainvillea** and a tendril of **Cucurbita** are considered to be
- analogous
 - vestigial
 - heterologous
 - homologous
34. The following three large flightless birds, Emu, Ostrich, and Rhea, show a common ancestry, however, they are found distributed in widely separated areas, like Australia, Africa and South America. What term could be assigned to this type of evolution?
- Convergent

- b) Divergent
c) Common
d) Competitive
35. The enzyme primarily responsible for protein degeneration in stomach is
a) trypsin
b) pepsin
c) chymotrypsin
d) endopeptidase
36. Choose the incorrect pair
a) Blubber, Whale
b) Flame cell, Glow worm
c) Choanocyte, Porifera
d) Marsupium, Kangaroo
37. Liver glycogen breakdown is stimulated by:
a) insulin
b) glucagon
c) adrenaline
d) both adrenaline and glucagon
38. The group of animals which exhibit two basic body form, the medusa and polyp are included in the phylum
a) echinodermata
b) nemathelminths
c) cnidaria
d) porifera
39. Tube feet are the locomotory organs of
a) star fish
b) octopus
c) lobster
d) snail
40. All fungi are :
a) autotrophs
b) heterotrophs
c) saprophytes
d) parasites
41. Under favourable environmental condition the amount of photosynthetically active radiation which is actually captured by the photosynthetic process is :
a) 1 - 5 percent
b) 3 - 15 percent
c) 2 - 10 percent
d) 1 - 2 percent
42. Which of the following is an occupational lung disease?
a) Pneumonia
b) Asbestosis
c) Aspergillosis
d) Tuberculosis
43. During extreme scarcity of water, the tissues present in the hump of camel, provide metabolic water, when oxidised. These tissues are
a) areolar
b) adipose
c) skeletal
d) neuromuscular
44. The pathway of minerals nutrients from abiotic to biotic and back to abiotic components in anecosystem is called
a) biological cycle
b) biomagnification
c) biogeochemical cycle
d) energy cycle

45. A biological community is an association of naturally occurring
- groups of different organisms living together in an area
 - members of the same species living and interacting with each other in a given area
 - group of living organisms living together interacting with each other and also with the non living environment.
 - population of organisms, all the members of which are able to breed among themselves to produce fertile off spring.
46. Blood of an 'O' blood group person has one of the following features :
- both 'a' and 'b' antibodies are present in plasma
 - both 'a' and 'b' antibodies are present in RBC
 - both 'A' and 'B' antigens are present in the RBC
 - both 'A' and 'B' antigens are present in the plasma
47. Flavr Saur is a
- transgenically produced cotton crop resistant to boll worm infection
 - hybrid variety of tobacco plant which gives better aroma and less of nicotine.
 - hybrid variety of tomato plant which gives more produce.
 - transgenically produced, tomato having longer shelf life.
48. Which of the following communicable diseases is **not** transmitted by *Culex* sp.?
- Japanese encephalitis
 - Kyasanur Forest disease
 - Filariasis
 - Western equine encephalitis
49. The red colour and heat associated with inflamed tissue is the result of
- increased numbers of white cells in the injured area
 - local vasodilation
 - loss of blood from the injured tissue
 - increased numbers of bacteria in the area of a wound
50. A biomedical technique that provides best pictorial form of the internal structures without exposing the patient to potentially harmful ionizing radiations is :
- X-ray radiography
 - computerized axial tomography
 - magnetic resonance imaging
 - positron emission tomography