

SEAL

Test Booklet Number

Test - 0803

Roll Number

BIOLOGY[Time : 1 ⁸⁵⁴⁴ Hours]

[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 HB pencil only) the circle bearing the correct answer.
6. After attempting a question, if candidate wants to change his/her answer, erase completely to change the response and re-dark another circle.
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 this purpose.
9. Candidate is to hand over 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.

0803/2400/B

[P.T.O.]

SEAL

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SET - I BIOLOGY

- Application of drug colchicine in cell division prevents the spindle microtubule formation by :
 - breaking microtubules.
 - thickening microtubules.
 - arresting chromosome movement.
 - arresting centriolar movement.
- The class of lipids that serve as major structural component of cell membrane is :
 - triglycerides.
 - glycerol.
 - fatty acids.
 - phospholipids.
- The number of chromatids at metaphase I of meiotic division of an organism with $2n = 12$ would be :
 - 24.
 - 12.
 - 48.
 - 6.
- In a biological system the total energy i.e., sum of usable energy and unusable energy is referred to :
 - entropy.
 - enthalpy.
 - activation energy.
 - free energy.
- The molecules having heavy isotopes can be separated from normal molecules by :
 - density gradient centrifugation.
 - differential centrifugation.
 - isopycnic centrifugation.
 - buoyant density centrifugation.
- During cell division, replication of DNA occurs during :
 - G_1 Phase.
 - G_2 Phase.
 - S Phase.
 - M Phase.
- In which direction by convention is the sequence of bases in a nucleic acid usually expressed?
 - 3' to 1'
 - 3' to 5'
 - 1' to 3'
 - 5' to 3'
- According to which theory / principle discontinuous variations play a major role in evolution of species?
 - Principle of natural selection
 - Theory of pangenesis
 - Theory of germplasm
 - Mutation theory
- The phenomenon due to which a gene masks or modifies the expression of another non-allelic gene is known as :
 - metastasis.
 - epistasis.
 - hypostasis.
 - hyperstasis.
- Operon consists of :
 - regulator, operator and repressor gene.
 - regulator, structural and operator gene.
 - operator and structural gene.
 - regulator, repressor, structural and operator gene.

11. A disorder Sickle-cell Anaemia, arises from the substitution of Valine in β chain of globin molecule of haemoglobin for :
- glycine.
 - glutamine.
 - glutamic acid.
 - cysteine.
12. A poly ploid having chromosome set from different sources such as different species is termed as :
- autopoly ploid.
 - aneu ploid.
 - allopoly ploid.
 - monoploid.
13. Nitrogenase converts :
- nitrogen into ammonia.
 - ammonia into nitrite.
 - nitrite into nitrate.
 - nitrate into nitrogen.
14. The movement of auxin which passes through cell wall would be known as :
- cytoplasmic.
 - apoplasmic.
 - symplasmic.
 - protoplasmic.
15. The first product of CO_2 fixation in C-4 pathway in plants is :
- formation of oxaloacetic acid by carboxylation of PEP in the mesophyll cells.
 - formation of oxaloacetic acid by carboxylation of PEP in the bundle sheath cells.
 - formation of PGA in the mesophyll cells.
 - formation of malic acid in the bundle sheath cell.
16. The pigment chlorophyll consists of a porphyrin ring with long lipid tail and a cation which is :
- manganese.
 - magnesium.
 - iron.
 - molybdenum.
17. The reaction that converts Pyruvic acid to Acetyl-coenzyme A is :
- oxydative dehydrogenation.
 - oxydative phosphorylation.
 - oxydative decarboxylation.
 - oxydative carboxylation.
18. Hypermetropia is a condition of human eye in which the image is formed :
- in front of retina and can be corrected by using a concave lens.
 - in front of retina and can be corrected by using a convex lens.
 - behind the retina and can be corrected by using a concave lens.
 - behind the retina and can be corrected by using a convex lens.
19. The heart is enclosed in double-walled sac called the :
- peritoneum.
 - perichordium.
 - pericardium.
 - periosteum.

20. Muscle fatigue is caused due to the accumulation of :
- malic acid.
 - lactic acid.
 - pyruvic acid.
 - ethanol.
21. Flame cells having a cavity containing a bunch of cilia, are found in the tissue of :
- some insects like fireflies for the production of light during the night.
 - flat worms to carry out the functions of removal of excretory products from the body.
 - Certain deep sea dwelling marine organisms to show the phenomenon of bioluminescence.
 - most of the filter feeders to maintain a current of water towards them, which helps them in feeding.
22. The correct sequence of reflex arc involving spinal cord is :
- receptor cells → receptor neurone → effectorneurone → spinal cord → relay neurone → muscle.
 - receptor cells → receptor neurone → spinal cord → relay neurone → effectorneurone → muscle.
 - effector neurone → relay neurone → spinal cord → receptor neurone → receptor cells.
 - effectorneurone → muscle → receptorneurone → spinal cord → relay neurone → receptor cells.
23. Morphallactic regeneration in animals occurs mainly by :
- re-patterning of existing tissues.
 - de-differentiation of adult structure.
 - regeneration with the help of blastema.
 - healing of wounds.
24. Colostrum is :
- a digestive enzyme secreted by gastric glands for the digestion of proteins.
 - a peptide hormone secreted by cells of intestinal mucosa to stimulate gall bladder to discharge bile.
 - a highly nutritive fluid secreted by the mammary glands of human female after delivery.
 - a digestive enzyme secreted by gastric gland for the digestion of milk in young.
25. Which of the following would happen if a seedling is artificially placed with its radicle pointing upwards?
- It will keep growing straight.
 - It will bend so as to move towards the ground.
 - It will stop growing.
 - It will grow parallel to the ground.
26. As a result of cleavage in higher vertebrates the ball of solid cells is :
- blastula.
 - blasto cyst.
 - blasto disc.
 - morula.

27. Tendrils of weak stems, when touch an object, curl around it to climb and to provide support to the plant, show the phenomenon of :
- chemotropism.
 - thermotropism.
 - thigmotropism.
 - geotropism.
28. Pneumatophoses in certain plants help in :
- climbing.
 - respiration.
 - photosynthesis.
 - storage.
29. The region of apical meristem in plants which give rise to procambium is known as :
- dermatogen.
 - periblem.
 - periderm.
 - plerome.
30. The condition of a flower in which perianth and androecium are inserted around the gynaecium on disc like thalamous is termed as :
- perigyny.
 - epigyny.
 - hypogyny.
 - syngamy.
31. One of the following does not apply to phrenoids :
- they are proteinbodies.
 - found in the chloroplasts of green algae.
 - associated with the storage of starch.
 - found in non green fungi.
32. Which of the following mixture of gases was used by Stanley Miller in the synthesis of amino acids under conditions thought to have been present in the primeval atmosphere?
- Methane, ammonia, water vapour and hydrogen.
 - Methane, carbondioxide, ammonia and water vapour.
 - Methane, ammonia, water vapour and nitrogen.
 - Methane, nitrogen, ammonia and hydrogen.
33. Which of the following are correct example of homologous organs :
- wing of an insect and wing of flying squirrel.
 - wing of a bat and forelimb of horse.
 - wing of an insect and wing of bird.
 - flippa of whale and wing of insect.
34. Devries studied his findings on which of the plant?
- Evening primrose
 - Garden pea
 - Sweet pea
 - citrus
35. Chromosomes with equal length of arms are known as :
- metacentric.
 - telocentric.
 - sub metacentric.
 - acentric.

36. Numerical methods for evaluation of similarities and differences between the species are employed in :
- natural system of classification.
 - phenetics.
 - cladistics.
 - biosystematics.
37. In which of the following, oxygen in the body is not transported by blood?
- Crustacea
 - Annelids
 - Birds
 - Insects
38. Animals with two layered body wall enclosing a single cavity, opening on one side only is the characteristic feature of phylum.
- Annelida
 - Porifera
 - Cnidaria
 - Nemathelminthes
39. Mosaic vision in cockroach is due to the presence of :
- rods.
 - cones.
 - ommatidia.
 - haemoglobin.
40. Pteridophytes differ from mosses in having :
- archegonia.
 - flagellate spermatozooids.
 - well developed vascular stem.
 - Independent gametophyte.
41. In which of the following groups all named animals can live successfully in xeric conditions?
- Lizard, snake, toad, peacock.
 - Camel, scorpion, flying squirrel, snail.
 - Kangaroo rat, camel, scorpion, lizard.
 - Frog, cockroach, camel, horned lizard.
42. Black-foot disease is a pollution related disease which results from :
- excess nitrate in drinking water.
 - cadmium pollution.
 - chronic exposure to arsenic.
 - excess fluoride in drinking water.
43. Vivipary is characteristic feature of :
- xerophytes.
 - hydrophytes.
 - halophytes.
 - heliophytes.
44. Which of the following plants is being cultivated for the production of bio energy fuel?
- Euphorbia
 - Jatropha
 - Tapioca
 - Acacia
45. The ecological level of organisation which is an assemblage of population of plants, animals, bacteria and fungi that live in an area and interact with each other; is known as :
- ecosystem.
 - biological community.
 - biome.
 - landscape.

46. T - Lymphocyte :
- mature in lymph nodes.
 - produce antibodies.
 - comprise 10 to 35% lymphocytes.
 - principal cells in lymph node cortical centre.
47. Bt toxin produced by a bacterium is :
- an antibiotic.
 - a biofertilizer.
 - a bioherbicide.
 - a bioinsecticide.
48. Which one of the following groups contains only viral diseases?
- Jaundice, Kalazar, Malaria, Tetanus
 - Influenza, Aids, Cholera, Amoebiasis
 - Rabies, Typhoid, Leprosy, Tetanus
 - Aids, Rabies, Chicken pox, Measels
49. The body loses the power of defence against invasion of pathogens with ageing due to atrophy of :
- spleen.
 - thymus.
 - pineal gland.
 - liver.
50. An electroencephalogram of a person in deep meditation state will show occurrence of :
- theta waves.
 - beta waves.
 - delta waves.
 - alpha waves.