

Test Booklet Number

Test - 1003

Roll Number

10197

**BIOLOGY**

[Time : 1 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 instructions 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 hand over the 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.



## BIOLOGY

1. Which one is the correct sequence of stages in prophase of meiosis?
  - a) Leptotene, Pachytene, Zygotene, Diakinesis, Diplotene
  - b) Zygotene, Leptotene, Pachytene, Diakinesis, Diplotene
  - c) Leptotene, Zygotene, Pachytene, Diplotene, Diakinesis
  - d) Diplotene, Diakinesis, Pachytene, Zygotene, leptotene
2. The correct heirarchial arrangement of the given taxonomic categories, in ascending order, is
  - a) Species → Genus → Order → Family
  - b) Genus → Family → Class → Order
  - c) Order → Class → Division → Kingdom
  - d) Kingdom → Class → Order → Family
3. The kind of plastids that would be present in rice grains are –
  - a) Amyloplasts
  - b) Elaioplasts
  - c) Alueroplasts
  - d) Chromoplasts
4. In the process of mitosis at one stage all the chromosomes are arranged on the equatorial plane. This stage is called
  - a) prophase
  - b) metaphase
  - c) telophase
  - d) anaphase
5. In Earthcorm, the kind of nephridia that are found to be maximum in number, are –
  - a) Septal Nephridia
  - b) Pharyngeal Nephridia
  - c) Buccal Nephridia
  - d) Integumentary Nephridia
6. Which of the following statements is true?
  - a) club mosses are bryophytes
  - b) ulothrix is an algae
  - c) jellyfish is a marrine fish
  - d) insects have four pairs of legs
7. Which of the following does not arise from axil of the leaf
  - a) Thorn of Bongainvillea
  - b) Branch
  - c) Tendril of Cucumber
  - d) Stipule
8. An underground stem has
  - a) only nodes but no internodes
  - b) nodes and internodes both
  - c) only internodes
  - d) neither nodes nor internodes
9. The tissues that constitute 'stele' are–
  - a) Vascular bundles
  - b) Pith and Vascular bundles
  - c) Pericycle, pith and Vascular bundles
  - d) Endodermis, pericycle, pith and Vascular bundles



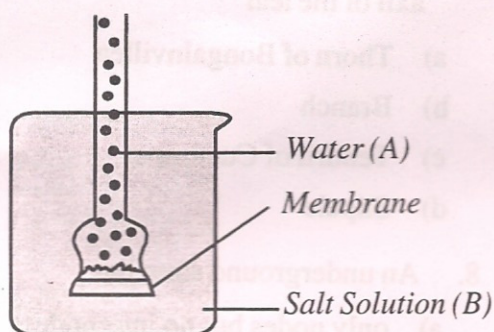
10. In pea plant, the first formed product of  $C_3$  cycle is—

- a) Pyruvic acid
- b) 3-Phosphoglyceric acid
- c) 2-Phosphoglyceric acid
- d) Phosphoglyceraldehyde

11. In which of the following, glycine and serine are formed

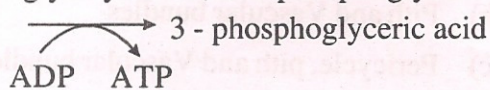
- a) glycolysis
- b) photorespiration
- c) calvin cycle
- d) citric acid cycle

12. In the given figure, the solution that the high solute. Potential and the direction in which osmosis will occur is—



- a) A; from A  $\rightarrow$  B
- b) B; from B  $\rightarrow$  A
- c) A; from B  $\rightarrow$  A
- d) B; from A  $\rightarrow$  B

13. During the following intermediate step of glycolysis : 1, 3 biphosphoglyceric acid



the phosphate used for the formation of ATP, comes from—

- a) phosphate radical in the cytoplasm
- b) phosphorus in the cytoplasm
- c) 1, 3 biphosphoglyceric acid
- d) triose phosphate

14. Which of the following processes initiate kreb's cycle during aerobic respiration

- a) oxidation
- b) reductive decarboxylation
- c) oxidative decarboxylation
- d) dehydrogenation

15. What happens if the cut end of a twig is put in eosine solution?

- a) xylem elements get stained showing ascent of sap through them
- b) leaves wilt quickly because ascent of sap stops
- c) phloem gets coloured because of ascent of sap
- d) leaves remain fresh but ascent of sap stops

16. The critical photoperiod of a short day plant is 12 hours. The plant will flower if there is—

- a) a continuous light period for 12 hours or more
- b) intermittent dark period for more than 12 hours
- c) a continuous dark period for less than 12 hours
- d) a continuous dark period more than 12 hours.



17. If the value of osmotic potential is  $-2.5 \text{ kPa}$ , then that of osmotic pressure will be—

- a) the same
- b) zero
- c)  $+ 2.5 \text{ kPa}$
- d)  $- 5 \text{ kPa}$

18. Cholecystokinin stimulates release of

- a) saliva
- b) bile
- c) gastric juice
- d) pancreatic juice

19. Out of the following statements about ascending limb, the incorrect statement is

- a) it is impermeable to water
- b) it absorbs excess of area actively
- c) the fluid in it keeps getting diluted, as it moves up
- d) it reabsorbs  $\text{NaCl}$  actively and passively

20. From the lungs oxygenated blood is brought back to the heart through

- a) pulmonary vein
- b) pulmonary artery
- c) coronary artery
- d) coronary vein

21. Given below are the names of hormones in Column I and their functions in Column II in jumbled form

Column I	Column II
a) Glucagon	i) Stimulates secretion of androgens in males
b) LH	ii) maintain basal metabolic rate

- c) Melatonin    iii) increases blood sugar level
- d) thyroxine    iv) regulates diurnal rhythm of our body

Which of the following sets correctly match the hormones with their functions

- a) a – iii, b – iv, c – ii, d – i
- b) a – iii, b – i, c – iv, d – ii
- c) a – ii, b – i, c – iv, d – ii
- d) a – ii, b – iii, c – ii, d – i

22. A person approached a doctor with the following symptoms : passing of excessive urine and drinking lots of water. Doctor on testing blood glucose level found it to be normal. This condition could be because of

- a) increased secretion of glucagon
- b) reduction in vasopressin secretion from posterior pituitary
- c) reduction in insulin secretion
- d) fall in glucose released in urine

23. For transmission of nerve impulse across a synapse, the neurotransmitter acetylcholine—

- a) remains in the synaptic vesicles of synaptic knob
- b) reaches the synaptic cleft by endocytosis
- c) is received by the receptors on the post synaptic membrane
- d) passes across post synaptic membrane, into the next neuron



24. During muscle contraction, the part of actin filament to which myosin head binds to form cross bridges, is
- troponin
  - tropomyosin
  - G-actin
  - site where troponin was present before  $\text{Ca}^{2+}$  bound to it
25. Lichens are important in the studies on atmospheric pollution because they
- can grow in polluted areas
  - can rapidly multiply in polluted areas
  - are sensitive to pollutants like  $\text{SO}_2$
  - Can purify the atmosphere
26. Highest net annual productivity occurs in
- Tropical rain forests
  - Tropical deciduous forests
  - Temperate forest
  - Oceans
27. Commonly in nature fertilized ovule in  $2n$  and  $3n$  condition is respectively found in
- endosperm, nucellus and egg
  - egg, antipodals and nucellus
  - antipodals, synergids and integuments
  - egg, nucellus and endosperm
28. The female gametophyte of a typical dicot plant at the time of fertilization is
- 8 nucleated and 7 celled
  - 7 nucleated and 8 celled
  - 6 nucleated and 7 celled
  - 8 nucleated and 6 celled
29. A ditheous anther contains
- Four microsporangia
  - three microsporangia
  - Two microsporangia
  - One microsporangium
30. Spermatids are transformed into spermatozoa by
- Spermiation
  - Spermatogenesis
  - Spermiogenesis
  - Spermatosis
31. A couple has two daughters. What is the probability of the third child to be a girl child again?
- 33%
  - 50%
  - 75%
  - 100%
32. Which of the following is a technique of direct introduction of gametes into the oviduct
- IVF
  - GIFT
  - ZIFT
  - IUI
33. The process that involves the transfer of genetic material from one bacterium to another through the agency of bacteriophage is
- transduction
  - transformation
  - translocation
  - transcription



34. Heterozygous tall (Tt) is crossed with homozygous tall (TT). Percentage of heterozygous tall in the  $F_1$  generation would be
- 25%
  - 50%
  - 75%
  - 85%
35. E. Coli was allowed to grow in medium containing  $N^{15}$  then it was allowed to grow on  $N^{14}$  medium for two generations. How many DNA molecules will be with  $N^{15} - N^{14}$ .
- Two
  - Three
  - Four
  - One
36. Lactose operon consists of
- structural genes
  - regulatory genes and control sites
  - structural genes and control sites
  - regulatory genes, control sites and structural genes
37. Which of the following organs are homologous?
- eyes of squid and eyes of man
  - gills of fish and lung of dog
  - leaf of moss and frond of fern
  - arms of man and wing of a bat
38. The vector which transmit malaria and the toxin which is produced when infected RBCs burst are
- male Anopheles mosquito and haemozoin
  - culex mosquito and haemotoxylin
  - female Anopheles mosquito and haemozoin
  - Aedis mosquito and haemotoxylin
39. A substance produced by host cells in response to viral infection and protecting other unattacked cells against viral infection is
- antibody
  - antigen
  - interferons
  - pyrogens
40. Morphine is obtained from
- Canabis sativa
  - Nicotiana tabacum
  - Aspergillus flavus
  - Papaver somniferum
41. MOET is method of
- Fish cultivation
  - Hybridisation of cattle
  - Birth control
  - Cloning of sheep
42. The process of making transient pores in the cell membrane to introduce foreign DNA is
- Electroporation
  - Micro-injection
  - Particle gun
  - Chemical mediated



43. The sequence of DNA is '5 ATGCATGAATTCGAT 3'. This can be cleaned using.
- Eco R I
  - Bam H I
  - Hind III
  - Eco R II
44. A transgenic food crop which may help in solving the problem of nigh-blindness in developing countries is
- Bt cotton
  - Bt Brinjal
  - Flavr savr tomato
  - Golden rice
45. The bioactive molecule statin is produced by
- Trichoderma polysporum
  - Monascus purpureus
  - Aspergillus niger
  - Saccharomyces cerevisiae
46. Mycorrhiza promotes plant growth by
- Absorbing inorganic ions from soil
  - Helping the plant in utilising atmospheric nitrogen
  - Protecting the plant from infection
  - Serving as a plant growth regulator
47. The interspecific interaction which confers benefits on both the interacting species
- mutualism
  - commensalism
  - parasitism
  - amensalism
48. First biotic community which develops in a bare area is called
- seral community
  - climax community
  - transitional community
  - pioneer community
49. Which one of the following is not a part of exsitu conservation?
- Cryo preservation
  - National parks
  - zoological parks
  - Botanical gardens
50. In which of the following would you expect to find the highest concentration of pesticides?
- snakes
  - catter pillars
  - frog
  - green plant