

SEAL

Test Booklet Number

Test - 1103

Roll Number

07979

BIOLOGY

[Time : 1 Hour]

[Maximum Marks : 200]

### 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 4 (four) marks for correct response. For each incorrect response, 1 (one) 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.

SEAL

P.T.O.

SEAL

## BIOLOGY

- The usual arrangement of megaspores in angiosperms is
  - linear
  - tetrahedral
  - bilateral
  - circular
- Arrival of pollen grains on the stigma of other flower of same plant is called
  - xenogamy
  - autogamy
  - cleistogamy
  - geitonogamy
- The middle piece of mammalian sperm contains
  - centriole only
  - nucleus and mitochondria
  - mitochondria only
  - mitochondria and centriole
- A colour blind daughter is born when
  - father is colour blind, mother is normal
  - mother is colour blind, father is normal
  - mother is carrier, father is normal
  - mother is carrier, father is colour blind
- Which combination correctly represents organisms, forming homogamete
  - Human male and female birds
  - Human female and female birds
  - Human male and male birds
  - Human female and male birds
- The determination of sex of child in humans depends upon
  - age of mother
  - type of sperm
  - health of mother
  - type of ovum
- If a segment of chromosome is turned around  $180^\circ$  it is termed as
  - translocation
  - insertion
  - inversion
  - elongation
- The enzyme which help in binding  $-\text{COOH}$  group of one amino acid and  $-\text{NH}_2$  group of another is
  - topoisomerase
  - helicase
  - peptidyl transferase
  - ligase
- In a single strand of DNA, nucleotides are linked by covalent bonds between
  - nitrogen bases
  - sugar and phosphate group
  - phosphate group and nitrogen base
  - sugar and nitrogen base
- Which of the following can be considered as the appropriate definition of homologous structures ?
  - organs appearing only in embryonic stage but disappear in the adults
  - organs having anatomical similarities but perform different functions
  - organs having anatomical dissimilarities but performing same functions
  - organs which perform no functions now but were functional in ancestors

11. The sequence of cells formed during spermatogenesis is
- (A) spermatocytes → spermatids → spermatozoa
  - (B) spermatocytes → spermatozoa → spermatids
  - (C) spermatozoa → spermatocytes → spermatids
  - (D) spermatids → spermatocytes → spermatozoa
12. Mutation arise due to
- (A) infection by micro - organisms
  - (B) abrupt changes in genes
  - (C) dominant character of one of the parents
  - (D) hybridization
13. In malaria, the symptoms of fever and chill are felt when
- (A) Anopheles female mosquito bites a healthy person
  - (B) RBC's get ruptured and merozoites are released in blood stream
  - (C) sporozoites are injected in the body of a healthy person
  - (D) sporozoites in the human body enter the liver
14. Condition when the body starts rejecting its own cells is called
- (A) auto - immunity
  - (B) immuno - deficiency
  - (C) hypo - immunity
  - (D) hyper - immunity
15. Some cyanobacteria can be used as biofertilisers because
- (A) they are autotrophic
  - (B) they can grow everywhere
  - (C) they can fix atmospheric nitrogen
  - (D) they have mucilage
16. If the tidal volume is 500 ml, expiratory reserve volume and residual volume is 1100 ml each, the value of expiratory capacity is
- (A) 1100 ml
  - (B) 1600 ml
  - (C) 2200 ml
  - (D) 2700 ml
17. Charas is obtained from
- (A) Cannabis sativa
  - (B) Nicotiana tobaccum
  - (C) Aspergillus flavus
  - (D) Papaver somniferum
18. The bioactive molecule cyclosporin A is produced by
- (A) Trichoderma polysporum
  - (B) Monascus purpureus
  - (C) Aspergillus niger
  - (D) Saccharomyces cerevisiae
19. The interspecific interaction in which one species is harmed whereas the other is unaffected
- (A) parasitism
  - (B) commensalism
  - (C) mutualism
  - (D) amensalism

20. In secondary succession where the vegetation of a place is burnt, the first species which is more likely to appear will be
- lichens
  - mosses
  - phytoplanktons
  - banyan trees
21. The driving force responsible for water transport of the plant is
- Root pressure
  - Transpiration pull
  - Cohesion – transpiration pull
  - Cohesion – Adhesion
22. Which one is correctly matched ?
- Down's syndrome – XO
  - Turner's syndrome – XXY
  - Haemophilia – sex linked disorder
  - Colour blindness – autosomal disorder
23. One of the following is the characteristics of phospholipids of plasma membrane
- One polar head and two non-polar tails
  - One non-polar head and two polar tails
  - Two non-polar heads and one polar tail
  - Two polar heads and one non-polar tail
24. Which of the following xylem element is living ?
- tracheids
  - vessels
  - parenchyma
  - fibres
25. Which of the following sets of substances represents monosaccharides
- ribose, glucose and fructose
  - maltose, glucose and fructose
  - glucose, sucrose and fructose
  - fructose, ribose and sucrose
26. The sugarcane, the first formed product of dark reaction is
- Oxalic acid
  - Oxaloacetic acid
  - Aspartic acid
  - Malic acid
27. Catterpillar of butterfly and tadpole of frog have one feature in common that
- they change into pupa
  - they respire through lungs
  - their feeding habits are different from those of their adults
  - they are aquatic
28. Match the given taxa to their taxonomic categories :
- |               |                |
|---------------|----------------|
| (i) Homo      | (ii) Hominidae |
| (iii) Primata | (iv) Chordata  |
- (i) species (ii) genus (iii) family (iv) class
  - (i) genus (ii) family (iii) class (iv) phylum
  - (i) genus (ii) order (iii) class (iv) phylum
  - (i) genus (ii) family (iii) order (iv) phylum

29. The value of resting membrane potential is  $-70$  mV and when the stimulus of desired threshold strikes, the value changes to  $+30$  mV. Out of the given terminology, the one that does not indicate this change, is
- Action potential
  - Depolarisation of the membrane
  - Entry of  $\text{Na}^+$
  - Repolarisation
30. If DNA molecule sequence is  $5' \text{ATGCATGCAT} 3'$  then the sequence of mRNA is
- $3' \text{AUGCAUGCAU} 5'$
  - $3' \text{UACGUACGUA} 5'$
  - $5' \text{ATGCAUGCAU} 3'$
  - $5' \text{UACGUACGUA} 3'$
31. Krebs's cycle is a common pathway for the major nutrients like carbohydrates, proteins and fats. Fatty acids enter the cycle through
- Dihydroxy acetonic phosphate
  - Acetyl CoA
  - Pyruvic acid
  - $\alpha$  - ketoglutaric acid
32. Which one of the following shows convergent evolution ?
- Rat and Dog
  - Bat and whale
  - Butterfly and Bird
  - Starfish and Cuttle fish
33. A cabbage plant when exposed to a certain phytohormone showed sudden increase in internodal length. The phenomenon observed is called
- apical dominance
  - lateral growth
  - bolting
  - elongation
34. Which of the following sets of animals belongs to cold blooded chordates ?
- pigeon, shark, crocodile
  - frog, salamander, snake
  - cat, crow, cow
  - whale, cow, penguin
35. Initial  $\text{CO}_2$  fixation in  $\text{C}_4$  plants takes place in the chloroplast of
- Epidermal cells
  - bundle sheath cells
  - guard cells
  - mesophyll cells
36. Oxygen in blood quickly diffuses into the active tissues because
- $p\text{O}_2$  (oxygenated blood) is higher than  $p\text{O}_2$  (tissues)
  - $p\text{O}_2$  (alveoli) is higher than  $p\text{O}_2$  (blood)
  - $p\text{O}_2$  (oxygenated blood) is higher than  $p\text{O}_2$  (deoxygenated blood)
  - $p\text{O}_2$  (atmospheric air) is higher than air  $p\text{O}_2$
37. Evaluation of  $\text{CO}_2$  is more than intake of oxygen when
- fats are respired
  - glucose is respired
  - sucrose is respired
  - organic acids are respired
38. During inspiration, the diaphragm and external intercostal muscles
- flattens and help raise the ribs and sternum, respectively
  - raises and help raise the ribs and sternum, respectively
  - flattens and ribs and sternum return to original position, respectively
  - raises and ribs and sternum return to original position, respectively

39. Transpiration pull will be maximum under which of the following conditions ?
- open stomata, high humid atmosphere and well irrigated soil
  - open stomata, high humid atmosphere and moist soil
  - closed stomata, dry atmosphere and dry soil
  - open stomata, dry atmosphere and moist soil
40. If no net change in the volume of water inside the plant cell was observed, this indicates that the external solution in which cell was placed
- hypertonic
  - isotonic
  - hypotonic
  - acidic
41. The correct path of water from the soil after it enters the plant to reach secondary xylem is
- soil → root hair cell wall → cortex → endodermis → pericycle → xylem
  - soil → root hair cell wall → cortex → pericycle → endodermis → xylem
  - soil → root hair cell wall → pericycle → cortex → endodermis → xylem
  - soil → root hair cell wall → endodermis → cortex → pericycle → xylem
42. HCl of gastric juice is produced by
- chief cells
  - oxyntic cells
  - goblet cells
  - columnar cells
43. Select the correct statement in respect of node of Ranvier of a nerve.
- Myelin sheath is discontinuous
  - Neurilemma is discontinuous
  - Both myelin sheath and neurilemma are discontinuous
  - Both myelin sheath and neurilemma are continuous
44. The steps in the process of decomposition are
- Fragmentation → leaching → humification → catabolism → mineralisation
  - Fragmentation → catabolism → leaching → mineralisation → humification
  - Fragmentation → leaching → catabolism → humification → mineralisation
  - Fragmentation → catabolism → leaching → humification → mineralisation
45. Out of the bones given below, fixed joint is present between
- Scapula and clavicle
  - Ilium, ischium and pubis
  - Sternum and ribs
  - Bones of torsals

46. Increased concentration level of pesticides in the body of organism at successive trophic level is called
- (A) pesticide control
  - (B) eutrophication
  - (C) biological magnification
  - (D) pesticide resistance
47. Which of the following relationships between endocrine glands and their functions is not correct ?
- (A) thyroid regulates  $O_2$  utilisation and respiration
  - (B) adrenal cortex regulates of mineral and osmotic balance
  - (C) parathyroid regulates iron metabolism
  - (D) anterior pituitary
48. Dough kept overnight in warm weather becomes soft and spongy because
- (A) it absorbs carbon dioxide from the atmosphere
  - (B) it absorbs moisture from the atmosphere
  - (C) bacteria affect the dough and make it soft and spongy
  - (D) fermentation takes place which makes it soft and spongy
49. Given below are the steps of nature formation in legumes
- (a) Bacteria come in contact with root hair
  - (b) Infection thread carries bacteria to inner tissues
  - (c) Cortical and pericycle cells divide
  - (d) root hair curls
- (A)  $a \rightarrow b \rightarrow d \rightarrow c$
  - (B)  $d \rightarrow a \rightarrow b \rightarrow c$
  - (C)  $a \rightarrow d \rightarrow b \rightarrow c$
  - (D)  $a \rightarrow b \rightarrow c \rightarrow d$
50. MOET is method of
- (A) Fish cultivation
  - (B) Hybridisation of cattle
  - (C) Birth control
  - (D) Cloning of Sheep