A

BE-2011

Test Booklet Code A **Test Booklet No.** 327393

This booklet contains 12 pages.
DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :-

1. The BIOLOGY test consists of **40** questions. Each question carries **1** mark. For each correct response, the candidate will get **1** mark. For each incorrect response, ¼ mark will be deducted. The maximum mark is **40**.
2. The Test is of **1 hour** duration.
3. Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet marking ● responses.
4. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5. **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6. The CODE for this Booklet is **A**. Make sure that the CODE printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7. The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8. Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9. Use of White fluid for correction is not permissible on the Answer Sheet.
10. Each candidate must show, on demand his / her Admission Card to the Invigilator.
11. No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12. Use of Manual Calculator is permissible.
13. The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak-01) be deemed not to have handed over the Answer Sheet and dealt with as an unfair means case.
14. The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16. The candidate will write the Correct Test Booklet Code as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak-01)

Candidate's Name :.....

Exam.Seat No.(in figures) ..... (in words) .....

Name of Exam. Centre :.....Exam. Centre No. : .....

Test Booklet Code : ..... Test Booklet No. : .....

Candidate's Sign ..... *Block Supdt. Sign* .....

BIOLOGY

1. In tall plants, because of which factor, continuous water column extends upward ?
   (A) Atmospheric pressure
   (B) Osmotic pressure
   (C) Suction pull
   (D) Root pressure

2. Which of the following does not affect water potential of Water ?
   (A) Concentration of dissolved substances.
   (B) Atmospheric pressure.
   (C) Gravitation.
   (D) Capillarity.

3. Whose water potential is less than water potential of root hair during the water absorption by root hair ?
   (A) Gravitational water
   (B) Soil solution
   (C) Pure water
   (D) Vacuolar sap

4. Which of the following is true for Photosynthesis ?
   (A) Reduction of CO_2 and water.
   (B) Oxidation of CO_2 and water.
   (C) Reduction of CO_2 and oxidation of water.
   (D) Oxidation of CO_2 and reduction of water.

5. Which of the following is not related to Photo-respiration ?
   (A) Lysosome
   (B) Chloroplast
   (C) Peroxisome
   (D) Mitochondrion

6. With reference to three Calvin cycles, which of the given options is correct for the following questions ?
   (i) How many gross PGAL molecules are produced ?
   (ii) Total, how many ATP molecules are required for synthesis of obtained PGAL molecules ?
   (iii) Total, how many $NADPH_2$ molecules are required for the synthesis of obtained PGAL molecules ?
   (A) *(i)* = 3 PGAL , *(ii)* = 3 ATP, *(iii)* = 3 $NADPH_2$
   (B) *(i)* = 6 PGAL , *(ii)* = 6 ATP, *(iii)* = 6 $NADPH_2$
   (C) *(i)* = 18 PGAL , *(ii)* = 18 ATP, *(iii)* = 18 $NADPH_2$
   (D) *(i)* = 9 PGAL , *(ii)* = 9 ATP, *(iii)* = 9 $NADPH_2$

(Space for Rough Work)

7. In which cells of leaf, Pyruvate is converted to PEP in C_4 pathway ?

(A) Epidermal cells
(B) Mesophyll cells
(C) Bundle sheath cells
(D) Guard cells

8. Proportion of which of the following should be increased in diet to improve strength and growth of bones ?

(A) Vitamin D, Ca^{+2} and vitamin K.
(B) Vitamin D, Ca^{+2} and Iodine.
(C) Vitamin D, Ca^{+2} and vitamin A.
(D) Vitamin A, Ca^{+2} and Zn^{+2}.

9. *Assertion* : "A" : CO_2 transport occurs very fast through R.B.Cs.

Reason : "R" : Enzyme Carbonic anhydrase is absent in blood plasma.

Which of the following is true for the given assertion "A" and reason "R" ?

(A) "A" and "R" both are correct and "R" is the correct explanation for "A".
(B) "A" and "R" both are correct, but "R" is not correct explanation for "A".
(C) "A" is correct and "R" is wrong.
(D) "A" is wrong and "R" is correct.

10. Which structure of the lungs is directly involved in O_2 / CO_2 exchange between air and blood capillary ?

(A) Bronchi
(B) Trachea
(C) Alveoli
(D) Secondary bronchi

11. Which teeth of human are shovel shaped and used for nibbling, cutting and tearing ?

(A) Canines
(B) Premolars
(C) Molars
(D) Incisors

(Space for Rough Work)

12. Which of the following option shows correct order of some stages of muscle contraction from the beginning to the end of the process ?

(A) Stimuli → Neurotransmitter secretion → Release of Ca^{++} → Cross bridges formation → Excitation of T-system → sliding of actin filaments.

(B) Stimuli → Neurotransmitter secretion → Excitation of T-system → Release of Ca^{++} → Cross bridges formation → sliding of actin filament → 'H' band diminishes.

(C) Stimuli → Excitation of T-system → Neurotransmitter secretion → Cross bridges formation → sliding of actin filaments → 'H' band diminishes.

(D) Stimuli → Neurotransmitter secretion → Cross bridges formation → Excitation of T-system → sliding of actin filament.

13. Which of the following organs synthesises Urea ?

(A) Duodenum (B) Kidney

(C) Liver (D) Pancreas

14. What is the location of Troponin in the process of muscle contraction ?

(A) Attached to mysin filament. (B) Attached to tropomyosin.

(C) Attached to myosin crossbridge. (D) Attached to T - tubule

15. Which of the following is correct for the given assertion 'A' and reason 'R' ?

Assertion : 'A' = Nitrogenous waste from arterial blood is removed, when blood passes through dialyser unit.

Reason : 'R' = Arterial blood of patient and dialysing liquid are made to flow on two sides of permeable membrane.

(A) 'A' and 'R' both are correct and 'R' is not correct reason for 'A'.

(B) 'A' and 'R' both are correct and 'R' is the correct reason for 'A'.

(C) 'A' is correct and 'R' is wrong.

(D) 'A' is wrong and 'R' is correct.

(Space for Rough Work)

16. They are Phagocytic in nature .....

(A) Neutrophil, Monocyte and Basophil.

(B) Neutrophil, Monocyte and Macrophage.

(C) Neutrophil, Basophil and Macrophage.

(D) Acidophil, Basophil and Lymphocyte.

17. Due to this, swelling around eyes, and large and popping eye balls are observed in an individual. Who has .....

(A) Less secretion of thyroxine in adult.

(B) Excessive secretion of thyroxine.

(C) Excessive secretion of Calcitonin.

(D) Less secretion of thyroxine right from birth.

18. It regulates cell division, protein synthesis and growth of the bone .....

(A) Prolactin (B) Somatotropic hormone.

(C) TSH (D) MSH

19. It converts short time memory into long time remembrance .....

(A) Reticular system (B) Hippocampus

(C) Thalamus (D) Medulla oblongata

20. It is a bridge between Nervous system and Endocrine system .....

(A) Thalamus (B) Hypothalamus

(C) Limbic system (D) Parietal lobe

(Space for Rough Work)

21. On the basis of corelation, find out the correct option from columns I, II and III.

Column-I	*Column-II*	*Column-III*
(a) Foolish plant	*(p)* Volatile hormone	*(x)* Induces dormancy
(b) Induces senescence	*(q)* GA	*(y)* Ripens fruits
	(r) Zeatin	*(z)* Usually sterile plant

(A) [*a* - *p* - *y*], [*b* - *r* - *x*]
(B) [*a* - *r* - *z*], [*b* - *q* - *z*]
(C) [*a* - *q* - *z*], [*b* - *p* - *y*]
(D) [*a* - *q* - *x*], [*b* - *r* - *y*]

22. If stock contains 58 chromosomes and scion contains 30 chromosomes, then how many chromosomes are present in root and egg cell of resultant plant respectively ?

(A) 30 and 29
(B) 15 and 58
(C) 58 and 15
(D) 29 and 30

23. How many nuclei take part in double fertilization of flowering plants ?

(A) 3
(B) 2
(C) 4
(D) 8

24. Which type of electron is present in free radical ?

(A) Unpaired and extremely reactive.
(B) Paired and extremely inactive.
(C) Unpaired and extremely inactive.
(D) Paired and extremely reactive.

25. Due to deficiency of which hormone, bones become weak in female ?

(A) ACTH
(B) TSH
(C) Progesterone
(D) Estrogen

(Space for Rough Work)

26. *Assertion* 'Q' : Due to fragmentation in Planaria, each part develops the remaining body parts and becomes a complete animal.

Reasons 'R' : Differentiated tissue present in each broken part of Planaria undergoes dedifferentiation and then differentiation for regeneration.

On the basis of assertion 'Q' and reason 'R', select the correct option.

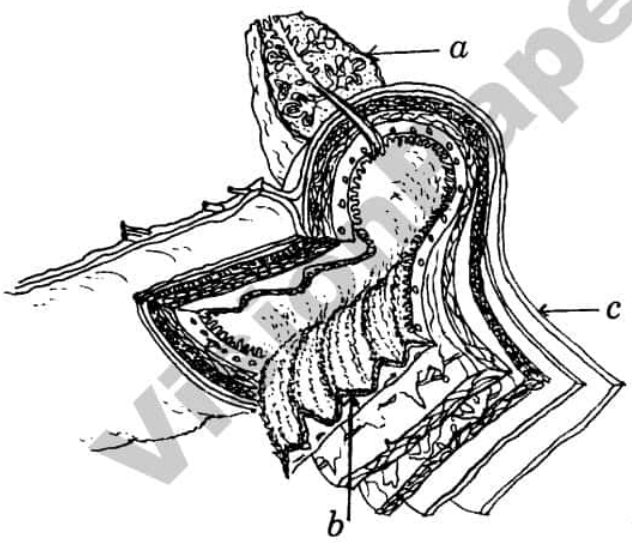
(A) 'Q' and 'R' both are correct and 'R' is not a correct reason for 'Q'.

(B) 'Q' and 'R' both are correct and 'R' is a correct reason for 'Q'.

(C) 'Q' and 'R' both are wrong.

(D) 'Q' is correct but 'R' is wrong.

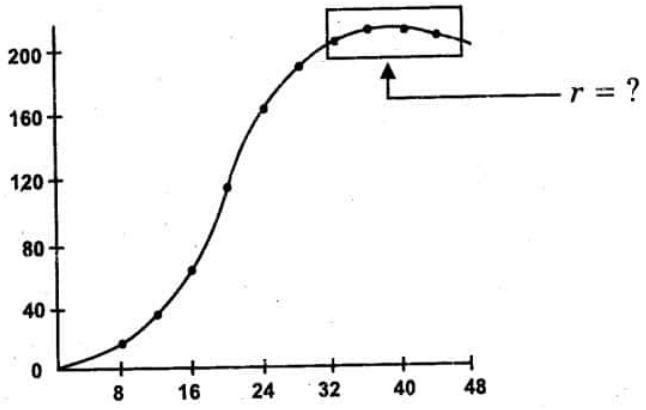
27. Which is the correct option for labels *a*, *b* and *c* in the given diagram ?



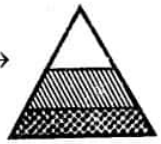
(A)	*(a)* Liver	*(b)*	Mucosa	*(c)*	Peritoneum
(B)	*(a)* Liver	*(b)*	Circular muscle layer	*(c)*	Serosa
(C)	*(a)* Pancreas	*(b)*	Mucosa	*(c)*	Peritoneum
(D)	*(a)* Pancreas	*(b)*	Submucosa	*(c)*	Serosa

(Space for Rough Work)

28. From the given graph of population growth select the correct option having correct value of 'r' and bargraph.



(A) r = – ve → 

(B) r = + ve → 

(C) r = – ve → 

(D) r = 0 → 

29. There are two optional ways of exploitation. One way is Parasitism. Which is the other one ?

(A) Antibiosis
(B) Competition
(C) Predation
(D) Commensalism

30. In which regions of the world are hot deserts located ?

(A) Equator and Tropic of Cancer.
(B) Equator and Tropic of Capricon.
(C) Polar region.
(D) Tropic of Cancer and Tropic of Capricon.

(Space for Rough Work)

31. At what height in Himalaya region of our country are taiga forest located ?

(A) At the height of 1000 to 1500 meters.

(B) At the height of 2000 to 3000 meters.

(C) At the height of 500 to 1000 meters.

(D) At the height of 1000 meters to 1200 meters.

32. Which of the following is correct range of latitudes for Temperate region ?

(A) 40° - 60°

(B) 0° - 20°

(C) 20° - 40°

(D) 60° - 80°

33. Which of the following is a correct option with reference to pathogenic bacteria and DDT ?

(A) Bacteria can undergo multiplication and DDT is degraded by living cells.

(B) Bacteria can be degraded by living cells and DDT can not be degraded by living cells.

(C) Bacteria can undergo Biological magnification and DDT can be degraded by living cells.

(D) Bacteria can undergo Biological magnification and DDT can not be degraded by living cells.

34. Which non conventional method is used to produce electricity at Sardar Sarovar Dam ?

(A) Wind energy

(B) Tidal energy

(C) Geothermal energy

(D) Hydropower

(Space for Rough Work)

35. Which of the following is the age of Agricultural Revolution ?

(A) Transitional period between Iron Age and Middle Age.

(B) Transitional period between New Stone Age and Bronze Age.

(C) Transitional period between Middle Age and Modern Times.

(D) Transitional period between Old Stone Age and New Stone Age.

36. Which of the following is a Crustacean ?

(A) Snail (B) Sea anemone

(C) Hydra (D) Prawn

37. Which of the following is STD ?

(A) Cancer (B) Malaria

(C) Pneumonia (D) Trichomonasis

38. Which of the following is used in diagnosis of Epilepsy ?

(A) X-ray radiography.

(B) DSA (Digital Subtraction Angiography).

(C) Sonography.

(D) PET (Positron Emission Tomography).

39. What is the name of complex formed at the time of action of 'T' cells ?

(A) HLA (B) STD antigen complex

(C) HLA antigen complex (D) MHC antigen complex

40. In which of the following, optical fibres are used ?

(A) Sonography (B) Endoscopy

(C) MRI (D) CT-scan

(Space for Rough Work)

(Space for Rough Work)