Test Booklet Code **A**

BE-2008

Test Booklet No. 635533

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

Important Instructions :-

1. The BIOLOGY test is consist 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 marks are **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 a 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 candidates 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 Supt. Sign* .....

108-A

BIOLOGY

1. Which of the following option shows correct co-relation between Column- I, II and III.

Column-I	*Column-II*	*Column-III*
(a) Calcium	(I) Required for ionic-balance.	(i) Grey blot on leaves.
(b) Boron	(II) Essential for constitution of nucleic acid.	(ii) Fruit-yield decreases.
(c) Phosphorus	(III) Required for absorption of Calcium.	(iii) Red blots on leaves.
(d) Chlorine	(IV) Required to activate respiratory enzyme.	(iv) Fruit-size diminishes.
(e) Manganese	(V) Required for synthesis of bipolar spindle.	(v) Young root tip begin to die.

(A) (a-V-v), (b-IV-iv), (c-III-i), (d-II-iii), (e-I-ii)
(B) (a-V-v), (b-III-iv), (c-II-iii), (d-I-ii), (e-IV-i)
(C) (a-I-iv), (b-II-v), (c-III-iii), (d-IV-i), (e-V-ii)
(D) (a-IV-iii), (b-I-iv), (c-V-v), (d-III-ii), (e-II-i)

2. In thistle funnel experiment, what will occur if sugar solution is added to beaker, after the process of osmosis stops ?
(A) The level of solution in thistle funnel rises up.
(B) The level of solution in thistle funnel lowers.
(C) The level of solution in beaker lowers.
(D) The level of solution remains unaffected in beaker.

3. Through which process, starch of the guard cell is converted into PEP ions ?
(A) Dephosphorylation (B) Decarboxylation
(C) Hydrolysis (D) Oxidation

(Space for Rough Work)

4. What is the net ATP molecules gain, when 4 molecules of Glucose undergo anaerobic respiration in plants ?

(A) 8 ATP
(B) 20 ATP
(C) 144 ATP
(D) 16 ATP

5. How many molecules of RuBP are required to produce 20 molecules of Serine in photo-respiration ?

(A) 20
(B) 40
(C) 60
(D) 80

6. Through which process, phospho-glyceraldehyde is converted into biphosphoglyceric acid ?

(A) Phosphorylation and oxidation.
(B) Dephosphorylation and dehydrogenation.
(C) Carboxylation and hydration.
(D) Decarboxylation and hydrogenation.

7. Which of the following is correct for the reaction occuring during Photo-respiration ?

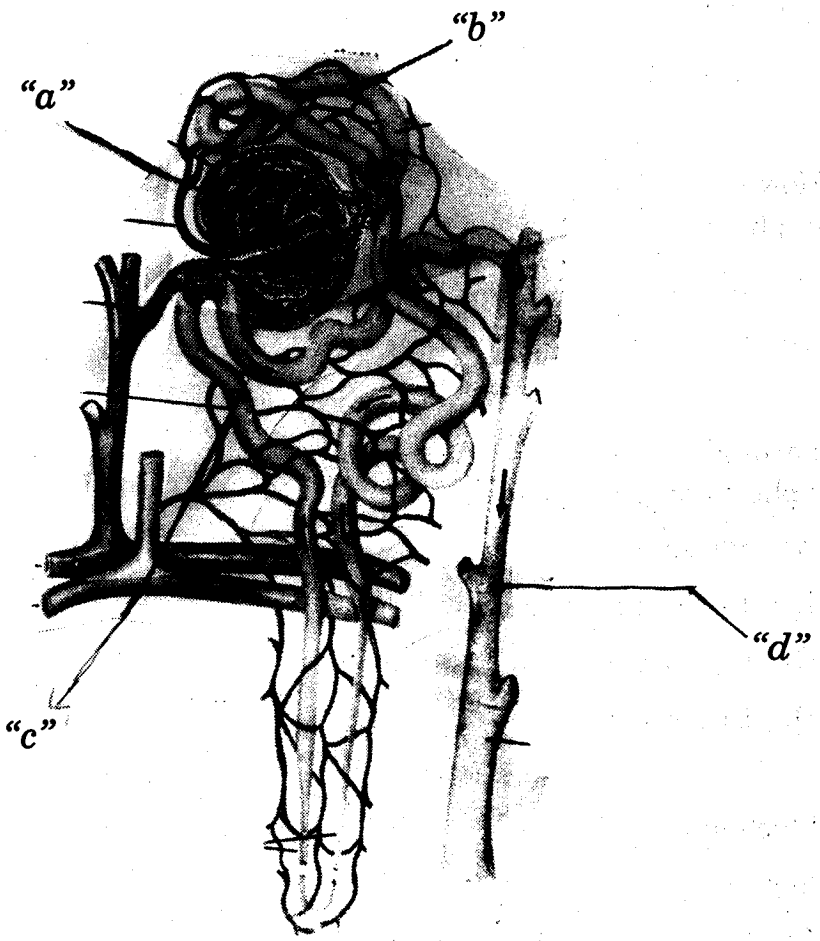
(A) In mitochondria, glycolate is oxidized to form glyoxylate.
(B) In mitochondria, two glycine molecules unite to form serine.
(C) In peroxisome, three molecules of glycine unite to form serine.
(D) In mitochondria, serine is converted to hydroxypyruvate.

8. Which of the following will not be absorbed in the absence of carrier molecule ?

(A) Monoglycerides
(B) Cholesterol
(C) Fructose
(D) Fatty acid

(Space for Rough Work)

9. While urine formation process, which of the following process takes place in the region labelled as '*a*', '*b*', '*c*' and '*d*' in the given diagram ?



(A) a = Collection of urine ; b = Secretion ;
c = Re-absorption ; d = Pressure filtration.

(B) a = Pressure filtration ; b = Re-absorption;
c = Secretion ; d = Collection of urine.

(C) a = Pressure filtration; b = Secretion;
c = Re-absorption ; d = Collection of urine.

(D) a = Re-absorption ; b = Secretion;
c = Pressure filtration ; d = Collection of urine.

(Space for Rough Work)

10. In which layer of the wall of alimentary canal, secretory glands are present ?

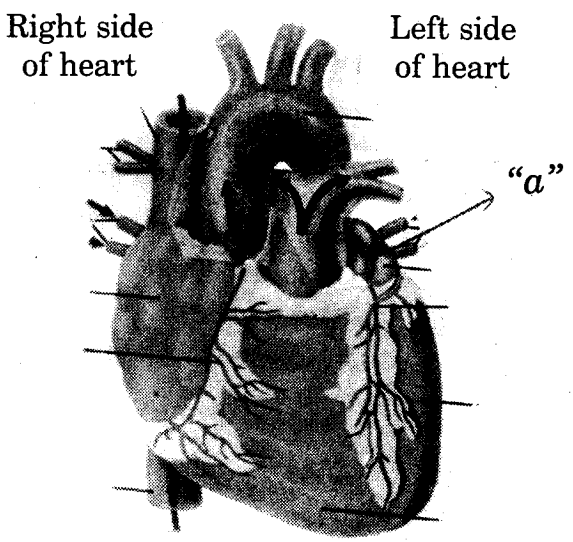
(A) Serosa
(B) Mucosa
(C) Muscularis
(D) Sub mucosa

11. Which of the following is correct match for column "A" and column "B" ?

Column A	*Column B*
(a) Retinol	(i) Inhibits oxidation of unsaturated fatty acids.
(b) Tocoferol	(ii) Absorption of Ca^{+2}.
(c) Calciferol	(iii) Essential for maintenance of epithelial tissue.
(d) Menadione	(iv) Helps in clotting of blood.
(e) Ascorbic acid	(v) Require for amino acid metabolism.

(A) (a-iii), (b-ii), (c-iv), (d-v), (e-i)
(B) (a-ii), (b-iii), (c-i), (d-iv), (e-v)
(C) (a-iii), (b-i), (c-ii), (d-iv), (e-v)
(D) (a-iv), (b-i), (c-ii), (d-iii), (e-v)

12. This statement is not related to the region labelled as "*a*" in the given diagram.



(A) Through mitral valve it communicates with left ventricle.
(B) Through tricuspid valve it communicates with left ventricle.
(C) Pulmonary vein brings blood to it.
(D) It is separated from the other auricle through interauricular septum.

(Space for Rough Work)

13. During urine formation, which of the following processes create high osmotic pressure in the uriniferous tubule.

(A) Active Na^+ absorption, followed by absorption of Cl^-.

(B) Active Cl^- absorption, followed by absorption of Na^+.

(C) Active secretion of Na^+ into efferent arteriole followed by absorption of Cl^- into efferent renal arteriole.

(D) Active secretion of Cl^- and absorption of Na^+ into efferent renal arteriole.

14. To which of the following, bundle of His passes stimulus of contraction ?

(A) A.V. node (B) S.A. node

(C) Purkinje fibre (D) Atrium

15. It is an outcome of irregularities in metabolism of the nitrogenous waste.

(A) Osteoporosis. (B) Gouty arthritis.

(C) Osteoarthritis. (D) Rheumatoid arthritis.

16. Which of the following is correct for the given assertion "A" and reason "R".

Assertion : "A" = Knee joint is hinge type joint.

Reason : "R" = Femur, Patella and Fibula are associated with knee joint.

(A) Assertion "A" and reason "R", both are correct and "R" is the correct explanation of "A".

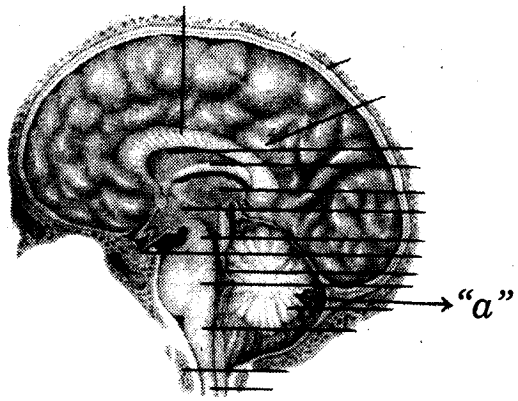
(B) Assertion "A" and reason "R", both are correct and "R" is not correct explanation of A.

(C) Assertion "A" is correct but reason "R" is wrong.

(D) Assertion "A" is wrong but reason "R" is correct.

(Space for Rough Work)

17. In the given diagram, what does "*a*" represent ?



(A) Pons
(B) Cerebellum
(C) Medulla oblongata
(D) Mid-brain

18. Which of the following is correct for lens focussing, while seeing distant object ?
(A) Taut suspensory ligament and rounded lens.
(B) Contracted ciliary muscles and rounded lens.
(C) Relaxed ciliary muscles and taut suspensory ligament.
(D) Contracted ciliary muscles and relaxed suspensory ligaments.

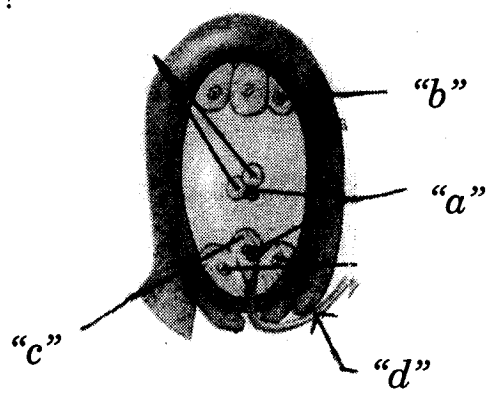
19. It helps in differentiation of cells of the immune system.
(A) Thymosins
(B) Thyroxine
(C) Cortisol
(D) Steroid

20. Structurally, what are Olfactory nerve cells ?
(A) Multipolar neuron.
(B) Unipolar neuron.
(C) Neurochemically specialized neuron.
(D) Bipolar neuron.

21. Why sometimes, even diploid offspring is produced through Parthenogenesis ?
(A) When offspring is produced without fertilization of diploid Egg cell.
(B) When offspring is produced through fertilization of diploid Egg cell.
(C) When offspring is produced without fertilization of haploid Egg cell.
(D) When offspring is produced through fertilization of haploid Egg cell.

(Space for Rough Work)

22. Which of the following indicates correct name of "*a*", "*b*", "*c*" and "*d*" regions of the given diagram ?



(A) *(a)* Male gamete, *(b)* Antipodals, *(c)* Egg cell, *(d)* Pollen tube
(B) *(a)* Synergids, *(b)* Secondary nucleus, *(c)* Egg apparatus, *(d)* Integuments
(C) *(a)* Antipodals, *(b)* Male gametes, *(c)* Zygote, *(d)* Micropyle
(D) *(a)* Secondary nucleus, *(b)* Synergids, *(c)* Egg cell, *(d)* Integuments

23. Which of the following is correct match for column "I" and column "II" ?

"I"	"II"
(1) Xanthium	(a) Its flower opens at higher temperature.
(2) Crocus	(b) Earlier and higher yield of crop can be obtained by keeping its seed at low temperature between 1°C and 10°C.
(3) Millet	(c) Growth regulator can be obtained from one of the parts of it.
(4) Coconut	(d) It produces flower, when period of light available is less than critical period.
	(e) It is an example of photonasty.
	(f) It produces flower, when period of light available is more than critical period.

(A) (1)-d, (2)-b, (3)-f, (4)-a (B) (1)-f, (2)-b, (3)-c, (4)-e
(C) (1)-d, (2)-a, (3)-b, (4)-c (D) (1)-d, (2)-e, (3)-f, (4)-a

(Space for Rough Work)

24. Which of the following takes part in formation of Placenta ?
(A) Only trophoblast.
(B) Only allantois.
(C) Trophoblast and mesoderm.
(D) Trophoblast, mesoderm and allantois.

25. "Genes in the somatic cells of the body undergo mutation with the passage of time. Such mutations cause senescence".
This theory belongs to which type of theories for ageing ?
(A) Hormonal theory.
(B) Programmed senescence theory.
(C) Error and damage theories.
(D) Immunological theories.

26. Which of the following are properties of reserved cells ?
(A) They are differentiated and they have capacity of cell division.
(B) They are undifferentiated and they do not have capacity of cell division.
(C) They are differentiated and they do not have capacity of cell division.
(D) They are undifferentiated and they have capacity of cell division.

27. Which of the following has a role of Sertoli cells in Spermatogenesis ?
(A) They provide nutrition to the developing sperms.
(B) They stimulate germinal epithelium.
(C) They direct morphogenesis of sperm.
(D) They provide nutrition to developing sperm ; they direct morphogenesis of sperm.

28. Which of the following is not short-wave radiation ?
(A) X-rays
(B) Radio waves
(C) Ultra-violet rays
(D) Cosmic rays

29. Find out odd one from the following options by considering its role in Nitrogen cycle.
(A) Clostridium
(B) Nostoc
(C) Pseudomonas
(D) Rhizobium

30. Which of the following helps in the growth of terrestrial pteridophytes in tropical rain forest ?
(A) Microclimate.
(B) C_4 path-way.
(C) Eutrophication.
(D) Biological magnification.

(Space for Rough Work)

31. Which of the following are reservoirs for Phosphorous and Nitrogen cycle respectively ?
(A) Atmosphere and bedrocks.
(B) Bedrocks and atmosphere
(C) Consumers
(D) Atmosphere and producers

32. Which of the following plants develop characters of Xerophytes ?
(A) Heliophytes
(B) Sciophytes
(C) Hydrophytes
(D) Halophytes

33. To remove which pollutants, enzymatic filters are used ?
(A) Hydrocarbons
(B) Lead
(C) Nitrogen pollutants
(D) Chloride pollutants

34. Which of the following is used as an alternative for minerals ?
(A) Rubber
(B) Polythene
(C) Decron
(D) Cement

35. Arrange the following options in ascending order of their BOD value.
(i) Sample of highly polluted pond water.
(ii) Sample from unpolluted pond water.
(iii) Distilled water.
(A) iii $\rightarrow$ i $\rightarrow$ ii
(B) ii $\rightarrow$ iii $\rightarrow$ i
(C) iii $\rightarrow$ ii $\rightarrow$ i
(D) i $\rightarrow$ iii $\rightarrow$ ii

36. Which of the following causes degradation of RBC ?
(A) Sulphur compounds
(B) Arsenic compounds
(C) Hydrocarbons
(D) Ammonia

37. Which of the following is provided to plant by fungi present in Mycorrhiza ?
(A) Phosphate
(B) Nitrate
(C) Carbonate
(D) Chloride

38. Which of the following provides immunity to digestive tract against antigen ?
(A) IgA
(B) IgD
(C) IgG
(D) IgE

39. What is HLA ?
(A) Group of proteins.
(B) Group of chromosomes.
(C) Group of genes.
(D) Group of polypeptides.

40. Which of the following element is important to maintain structure of immunoglobulin ?
(A) P
(B) Fe
(C) S
(D) Ca

(Space for Rough Work)

(Space for Rough Work)