

DAY — **10**

SEAT NUMBER

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2025	VII	05	1100	J-410	(E)
BIOLOGY (56)					
Time : 3 Hrs.		(8 Pages)		Max. Marks : 70	

General Instructions :

The question paper is divided into **four** sections.

- (1) **Section A :** Q. No. 1 contains **Ten multiple choice** type of questions carrying **one** mark each. Evaluation will be done for the **first attempt only**.
Q. No. 2 Contains **Eight very short answer** type of questions carrying **one** mark each.
- (2) **Section B :** Q. No. 3 to 14 are **short answer** type of questions carrying **two** marks each.
(Attempt any **Eight**)
- (3) **Section C :** Q. No. 15 to 26 are **short answer** type of questions carrying **three** marks each.
(Attempt any **Eight**)
- (4) **Section D :** Q. No. 27 to 31 are **long answer** type of questions carrying **four** marks each.
(Attempt any **Three**)
- (5) **Begin the answer of each section on a new page.**

SECTION – A

Q. 1. Select and write the correct answer for the following multiple choice type of questions : [10]

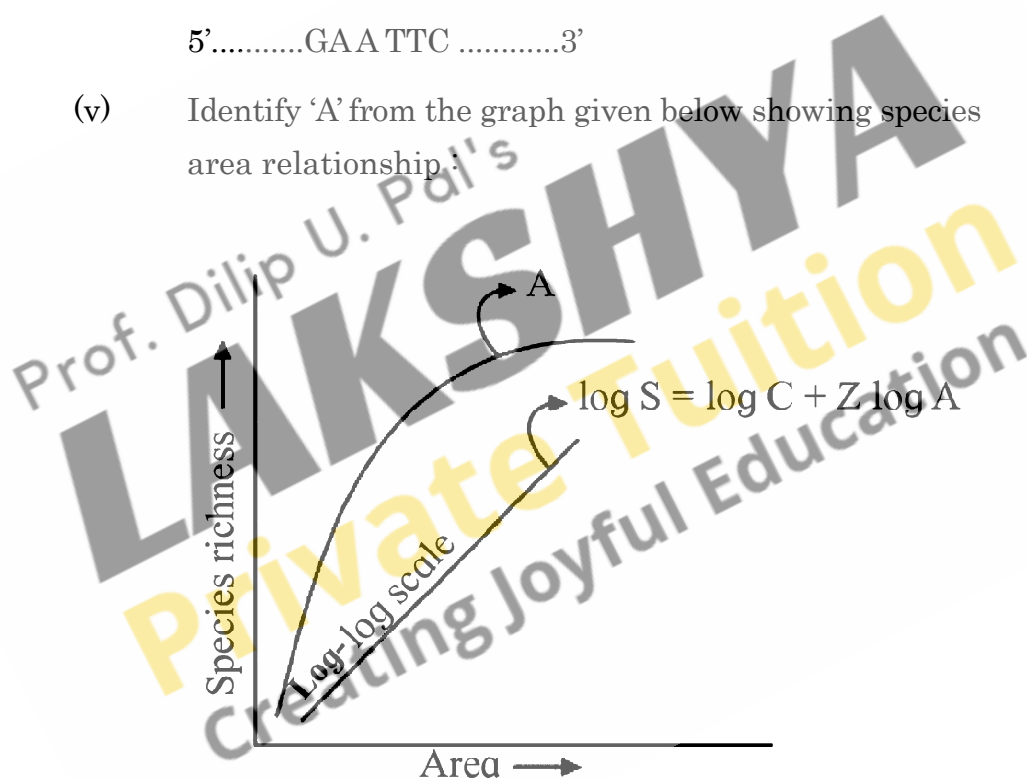
- (i) The number of base pairs present around a histone octamer of nucleosome is ____ .
- (a) 200 (b) 146
(c) 54 (d) 20
- (ii) Which of the following is NOT a sensory nerve?
- (a) I (b) II
(c) III (d) VIII
- (iii) Which of the following biofertilizers is used by farmers to increase the yield of rice crop?
- (a) *Azotobacter* (b) *Azospirillum*
(c) *Bacillus* (d) *Azolla*
- (iv) Connecting link between amphibians and reptiles is ____ .
- (a) *Archaeopteryx* (b) *Australopithecus*
(c) *Seymouria* (d) *Ichthyosaurus*
- (v) The type of gene interaction deviating from Mendel's findings of 3 : 1 to 1 : 2 is ____ .
- (a) Incomplete dominance
(b) Codominance
(c) Multiple alleles
(d) Pleiotropy

- (ii) Name the process in which swelling of hydrophilic colloids occur due to adsorption of water.
- (iii) Give the term for the condition in which the number of WBCs in blood decreases below normal.
- (iv) What is the term, when nucleotides on DNA strands shows the following sequence of base pairs.

3'.....CTT AAG.....5'

5'.....GAA TTC3'

- (v) Identify 'A' from the graph given below showing species area relationship .



- (vi) Name the disorder in which deficiency of ADH leads to reduced water reabsorption and increase in urine output.
- (vii) Name the permanent birth control method in which the fallopian tube is tied and cut.

- (viii) Name the long term storage places of carbon in the form of rocks and fossil fuels which are away from carbon cycle.

SECTION – B

Attempt any EIGHT of the following questions :

[16]

- Q. 3.** Give any two reasons why breathing through nose is beneficial than through mouth.
- Q. 4.** Mention any two molecular evidences of evolution.
- Q. 5.** Enlist any four uses of gene therapy.
- Q. 6.** Define the terms :
- (a) Explant
 - (b) Callus
- Q. 7.** Identify the disorders showing following symptoms :
- (a) Constriction of bronchioles, mucus build up in bronchioles, periodic wheezing, difficulty in breathing.
 - (b) Inflammation of sinuses and mucous discharge.
- Q. 8.** Define- AGR and RGR regarding plant growth.
- Q. 9.** Draw a neat diagram of structure of root hair showing vacuole, mitochondria and nucleus.
- Q. 10.** Enlist the types of chromosomes on the basis of position of centromere.

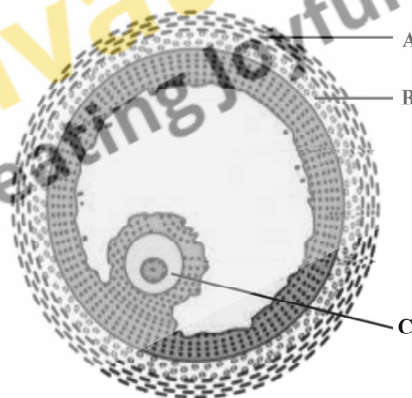
- Q. 11. Mention any four drawbacks of Darwinism.
- Q. 12. Write appropriate equations to represent Ammonification.
- Q. 13. Give any two functions of Medulla oblongata.
- Q. 14. Differentiate between Inspiration and Expiration with respect to position of diaphragm and working of intercostal muscles.

SECTION – C

Attempt any EIGHT of the following questions :

[24]

- Q. 15. What is adolescence? Mention any four characteristics of 15 to 17 years age group.
- Q. 16. Identify A, B and C from the given diagram of Graafian follicle and mention their significance :



- Q. 17. (a) Which part of CNS produces CSF?
(b) Give any four functions of CSF.

- Q. 18. Write the name and position of any three valves in human heart.
- Q. 19. Describe any three chemical defence mechanisms in plants against herbivores in population interaction.
- Q. 20. Mention any six symptoms of disorder caused by trisomy of 21st chromosome.
- Q. 21. Describe the development of male gametophyte from microspore. Draw a neat labelled diagram of male gametophyte.
- Q. 22. Define decomposition. Explain any four steps of decomposition in correct sequence.
- Q. 23. Give deficiency symptoms of following elements in plants :
- Potassium (K^+)
 - Magnesium (Mg^{++})
 - Boron (BO^{-3})
- Q. 24. Give scientific names of sugarcane varieties native of North and South India. Name the centre in India which has developed sugarcane varieties containing high sugar.
- Q. 25. With appropriate terms, complete the following chart and rewrite it :

Sr.No.	Disorder/Diseases Health Condition	Recombinant Protein (s)
(i)	Parturition	_____
(ii)	Emphysema	_____
(iii)	_____	Hepatitis B vaccine

- Q. 26. Mention any two major types of air pollutants. Add a note on their ill effects on human health.

SECTION – D

Attempt any **THREE** of the following questions :

[12]

- Q. 27. Define endosperm. Describe types of endosperm.
- Q. 28. With the help of a neat labelled diagram, describe the structure of human sperm.
- Q. 29. Describe the transcription and processing of hnRNA to mRNA in Eukaryotes.
- Q. 30. What is transpiration? Draw well labelled diagram showing structure of stomatal apparatus in dicotyledons? Mention any three advantages of transpiration.
- Q. 31. Name any four hormones secreted by adenohypophysis and give their significance.