DAY — **12** SEAT NUMBER | | | | | | |

2025	II	27	1100	**J-335**	(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 aquatic plant _____ is known as "Terror of Bengal."

(a) Lotus (b) Pistia

(c) Eichhornia (d) Vallisneria

(ii) A flower shows dull colour, strong fragrance and edible pollen grains. The type of pollination in such flowers is_____.

(a) Anemophily (b) Chiropterophily

(c) Ornithophily (d) Entomophily

(iii) Part of the sperm containing enzymes for penetration of corona radiata is_____ .

(a) tail (b) middle part

(c) neck (d) head

(iv) In bird population of newly formed volcanic island, a rare allele of a gene was noted to be much more prevalent than the populations of same species on the mainland. This is known as _____ effect.

(a) Founder (b) Bohr

(c) Bottle neck (d) Haldane

(v) In a plant, deficiency symptom called 'Die-back of shoots' was observed. This can be rectified by this element –

(a) zinc (b) sulphur

(c) iron (d) copper

(vi) Insect resistant property in cotton crop is developed by introducing a gene from _____.

(a) *Bacillus thuringiensis* (b) *Bacillus subtilis*

(c) *Bacillus polymyxa* (d) *Escherichia coli*

(vii) The type of interspecific interaction in which one species is harmed and other is not affected is termed as_____.

(a) commensalism (b) parasitism

(c) amensalism (d) mutualism

(viii) The small pores present on woody stem surface with bark and which carry out gaseous exchange are _____.

(a) stomata (b) hydathode

(c) ventricles (d) lenticels

(ix) In the given food chain, if plants absorb 1000 Joules of light energy, then how much energy is available for Lion?

Plants → Deer → Lion

(Producer) (Herbivore) (Carnivore)

(a) 10 Joules (b) 100 Joules

(c) 1000 Joules (d) 0.1 Joule

(x) Glucagon is secreted by _____ cells of pancreas.

(a) PP (b) alpha

(c) delta (d) beta

Q. 2. **Answer the following questions :** **[8]**

(i) What is the effect of excessive transpiration in leaves?

(ii) Which method of plant breeding can be used to obtain many genetically identical saplings of endangered species?

(iii) Define : Spermatogenesis.

(iv) What is grand period of growth?

(v) Write the anticodon of 5' AUG 3'.

(vi) Mention pollinating agent for maize flowers.

(vii) Which is the first step in the process of absorption of water by roots from soil?

(viii) Name the hormonal disorder caused due to hyperthyroidism in adults.

SECTION – B

Attempt any EIGHT of the following questions : **[16]**

Q. 3. Enlist any two domesticated species of honeybee and write their role in increasing crop yield.

Q. 4. (a) Name the vein which carries oxygenated blood.

(b) How does portal vein differ from normal vein?

Q. 5. The health worker in hilly area will advise people to prevent which deficiency disease?

Which micronutrient is deficient in the above area?

Q. 6. Name the vector responsible for causing malaria and filariasis respectively.

Q. 7. Name two chromosomal disorders which show presence of 47 chromosomes. Give their genotypes.

Q. 8. Which germinal layer produces following structures?

(i) Eustachian tube

(ii) Pineal gland

(iii) Middle ear

(iv) Lining of middle ear

Q. 9. Due to environmental change in area, the fruits were taking more time for ripening. Which gaseous growth regulator can be suggested to fruit merchant?

Give the source of the same in plants.

Q. 10. Explain two-celled stage of pollen grain in angiosperms.

Q. 11. What is the difference between Heterocatalytic and Autocatalytic function of DNA?

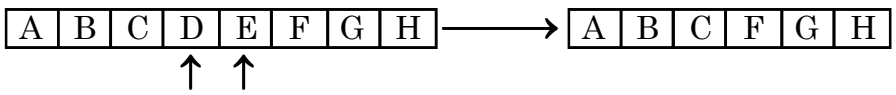
Q. 12. What is Transpiration?

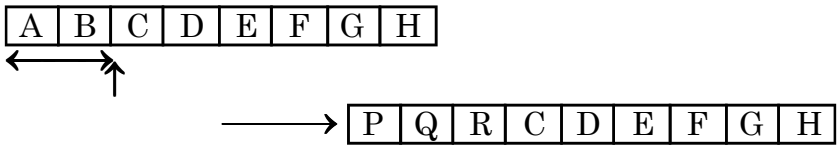
How does it differ from guttation?

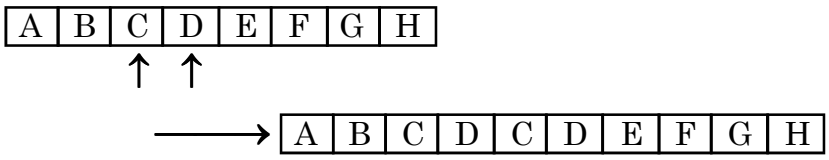
Q. 13. Give reason:

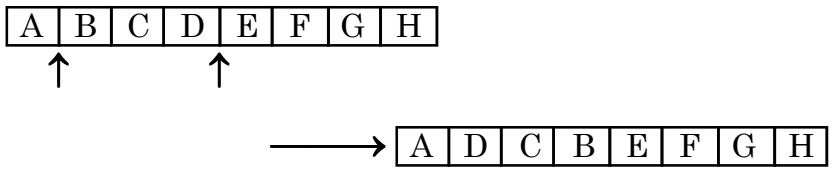
When Rh –ve mother conceives Rh +ve foetus, then she is given injection of anti Rh antibodies.

Q. 14. Identify the chromosomal aberrations:

(i) 

(ii) 

(iii) 

(iv) 

SECTION – C

Attempt any EIGHT of the following questions : **[24]**

Q. 15. Complete the following table –

	Organ Region	**Sympathetic effect**	**Parasympathetic effect**
(i)	Heart beat	Increases	
(ii)	Blood vessels		Dilates
(iii)	Arterial B.P.		Decreases
(iv)	Pupil of eye		Constricts
(v)	Gastrointestinal movements	Retards peristalsis	
(vi)	Urinary bladder	Relaxes	

Q. 16. (a) Draw neat and labelled diagram to show T.S. of artery.

(b) Name two superficially placed arteries.

Q. 17. Write any six characteristics of genetic code.

Q. 18. (a) In the process of rDNA technology, if two separate restriction enzymes are used to cut the vector and donor DNA, then which problem will arise in the formation of rDNA or chimeric DNA. Explain.

(b) Name any two restriction enzymes and their source organisms.

Q. 19. (a) Explain vestigeal organs as evidence of evolution.

(b) Give any two examples of vestigeal organs in human beings.

Q. 20. What is water potential ?

Write any four factors affecting water absorption in plants.

Q. 21. Draw the developmental flow chart in plant from seed germination to death of plant.

Q. 22. Which element is mostly fixed by biofertilizer?

Write the benefits of biofertilizer.

Q. 23. What is biofortification? Explain with respect to GM food plants.

Q. 24. Differentiate between habitat and niche.

Q. 25. What is decomposition?

Give diagrammatic representation of 'decomposition cycle.'

Q. 26. What is biomagnification ? Draw the flow chart and explain it with respect to DDT.

SECTION – D

Attempt any THREE of the following questions : **[12]**

Q. 27. (a) What is the location of blind spot in human eye?

(b) Give importance of retina in image formation.

(c) Name the cells which function in dim light and day light.

(d) Which pigment is derived from vitamin A?

Q. 28. With the help of a neat and labelled diagram, explain the conducting system of human heart.

Q. 29. (a) Explain incomplete dominance and codominance with suitable example.

(b) Show the genotype with the help of charts.

Q. 30. (i) Define : Siphonogamy.

(ii) Differentiate between chalazogamy and porogamy with respect to the entry of the pollen tube.

(iii) Draw a neat and labelled diagram to show mesogamy.

Q. 31. (a) Define : Infertility.

(b) If woman's fallopian tube is blocked, which treatment can be given to overcome infertility? Explain in brief.

(c) What is sperm bank?

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