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Subject Code J-297

Seat No.

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E

DATE : 27/06/2026

SUBJECT : BIOLOGY (56)

Time : 11.00 - 2.00

DURATION : 3 Hours

TOTAL PAGES : 7

TOTAL MARKS : 70

**General Instructions :**

The question paper is divided into four sections.

- (i) 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.
- (ii) Section B : Q. No. 3 to 14 are short answer type of questions carrying two marks each. (Attempt any Eight)
- (iii) Section C : Q. No. 15 to 26 are short answer type of questions carrying three marks each. (Attempt any Eight)
- (iv) Section D : Q. No. 27 to 31 are long answer type of questions carrying four marks each. (Attempt any Three)
- (v) 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 :

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- (i) The microorganism used for production of beverages like wine, whisky, etc. is \_\_\_\_\_.
- (a) Streptomyces venezuelae (b) Saccharomyces cerevisiae  
(c) Aspergillus niger (d) Streptomyces griseus

End of Page 1 (P.T.O.)

- (ii) Which of the following is NOT a Day Neutral Plant (DNP)?
- (a) Cucumber (b) Tomato  
(c) Cotton (d) Tobacco
- (iii) When food is translocated from phloem to pith, it is called \_\_\_\_\_ translocation.
- (a) radial (b) tangential  
(c) upward (d) downward
- (iv) Extinction of a host fish leads to extinction of unique parasites of it. This is an example of \_\_\_\_\_.
- (a) Over exploitation (b) Invasion of alien species  
(c) Co-extinction (d) Habitat loss
- (v) Flavr savr tomato is genetically modified variety for improving \_\_\_\_\_.
- (a) shelf life (b) disease resistance  
(c) iron content (d) yield
- (vi) A petridish containing nutrient medium shows tremendous increase in number of bacteria in short time. It is \_\_\_\_\_ growth.
- (a) slow (b) exponential  
(c) logistic (d) linear
- (vii) Weight loss, increased BMR and protruding eyeballs are the characteristics of \_\_\_\_\_.
- (a) Cretinism (b) Exophthalmic goitre  
(c) Myxodema (d) Simple goitre
- (viii) Charas and ganja are different products obtained from \_\_\_\_\_.
- (a) Papaver somniferum (b) Erythroxylum coca  
(c) Atropa belladonna (d) Cannabis sativa

- (ix) Select the analogous organs.
- (a) Forelimbs of lizards and birds.
  - (b) Sweet potato and potato.
  - (c) Thorns of Bougainvillea and tendrils of cucurbita.
  - (d) Vermiform appendix and the caecum.
- (x) Which one of the following is an example of primary succession?
- (a) Abandoned agricultural fields grow wild plants.
  - (b) New grasses grown on savanna after a wildfire.
  - (c) Newly formed volcanic island is colonised by Lichens.
  - (d) Miyawaki plantation on hill slopes.

Q. 2. Answer the following questions :

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- (i) How many meiotic divisions are required to produce 80 male gametes in Angiosperms?
- (ii) Which biological tool in rDNA technology is also called molecular scissors?
- (iii) When turgor pressure is equal to wall pressure of a turgid cell, then what would be the diffusion pressure deficit?
- (iv) What are Long Day Plants (LDP)?
- (v) Which part of human brain is responsible for maintaining body balance?
- (vi) What is the approximate volume of blood pumped out during one cardiac cycle in adult human?
- (vii) Name the milk secreted by mammary gland soon after parturition.
- (viii) Name the causative agent of typhoid.

**SECTION – B**

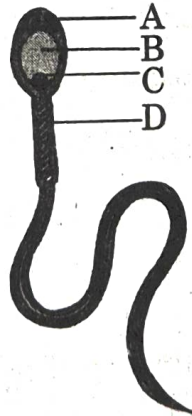
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Attempt any EIGHT of the following questions :

- Q. 3. Give the properties of water.
- Q. 4. Mention the characteristics of plasmids which make it a good vector.
- Q. 5. Sketch and label the structure of antibody.
- Q. 6. Match the crop and its hybrid variety and rewrite the following :

Column I	Column II
Crop	Hybrid Variety
(i) Rice	(1) Ganga-3
(ii) Maize	(2) Niphad
(iii) Jowar	(3) Ratna
(iv) Bajra	(4) CO-12

- Q. 7. Identify the labels-A, B, C and D in the given diagram.



- Q. 8. Considering Griffith experiment, answer the following.
- (a) Name the bacterium used.
- (b) Write conclusion of the experiment.

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- Q. 9. Write a note on Angina-Pectoris.
- Q. 10. Explain the term plasticity.
- Q. 11. Sketch and label the Graafian follicle showing theca externa, antrum and corona radiata.
- Q. 12. Give the skeletal features of *Homo erectus*.
- Q. 13. Enlist the names of VI, VII, VIII and IX cranial nerves.
- Q. 14. With the help of graphical representation explain sex determination in honey-bees.

## SECTION – C

Attempt any EIGHT of the following questions :

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- Q. 15. Write any three characters each of Archaeopteryx showing Reptilian and Avian features.
- Q. 16. Give an account of cutting and grafting as vegetative reproduction methods.
- Q. 17. Explain leaching, humification and mineralization as the steps of decomposition process.
- Q. 18. Describe commensalism giving two examples.
- Q. 19. With the help of a labelled diagram, describe the structure of root-hair.
- Q. 20. (a) Write a note on meninges of central nervous system in human being.  
(b) Give functions of cerebrospinal fluid.

- Q. 21. (a) Enlist any four mineral deficiency symptoms seen in plants.  
(b) Give the function of molybdenum as mineral nutrient.
- Q. 22. Match the following from Column-A and Column-B. Write the correct pairs.

## Column A

## Column B

- |                      |  |
|----------------------|--|
| (i) Anaemia          | (1) Platelet derived growth factor                   |
| (ii) Atherosclerosis | (2) Relaxin  |
| (iii) Parturition    | (3) Insulin  |
| (iv) Blood clots     | (4) Erythropoietin                                   |
| (v) Cancer           | (5) Tissue plasminogen activator (TPA)               |
| (vi) Diabetes        | (6) Interferons, tumour necrosis factor interleukins |

- Q. 23. Write a note on *in situ* conservation of biodiversity.
- Q. 24. Explain the phase of menstrual cycle which occurs after ovulation.
- Q. 25. Differentiate between inspiration and expiration during breathing process.
- Q. 26. (a) Give the composition of biogas.  
(b) Enlist the benefits of biogas.

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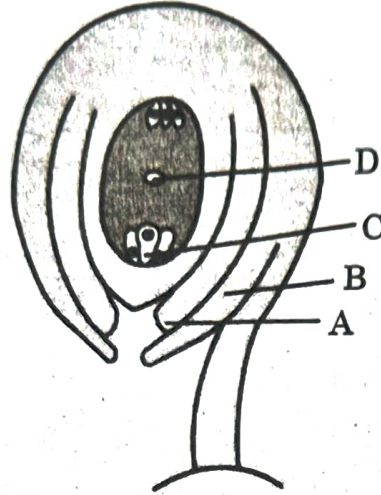
## SECTION – D

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

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- Q. 27. Give location and function of any four valves present in human heart.

- Q. 28. Identify A, B, C and D parts in the given diagram of an Angiospermic ovule and give the fate of each part after fertilization:



- Q. 29. Give an account of different functional areas of cerebrum.

- Q. 30. (a) Write a note on Holandric genes.

- (b) Complete the following table:

A	B
(i) Monosomy	(1) <input type="text"/>
(ii) <input type="text"/>	(2) $2n-2$
(iii) Trisomy	(3) <input type="text"/>
(iv) <input type="text"/>	(4) $2n+2$

- Q. 31. (a) What is DNA profiling?

- (b) Arrange the following steps of DNA profiling in correct sequence:

- |                            |                            |
|----------------------------|----------------------------|
| (i) Selection of DNA probe | (ii) Isolation of DNA      |
| (iii) Gel electrophoresis  | (iv) Hybridization         |
| (v) Southern blotting      | (vi) Restriction digestion |

