Subject Code J-297

Seat No. | | | | | | | |

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DATE : 27/06/2026

Time : 11.00 - 2.00

SUBJECT : BIOLOGY (56)

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 : **10**

(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*

(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) Exopthalmic 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 : 8

(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

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

Q. 3. Give the properties of water.

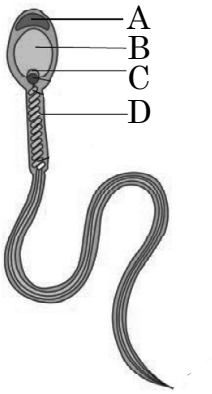
Q. 4. Mention the characteristics of plasmids which make it a good vector.

Q. 5. Sketch and label the structure of antibody.

Q. 6. Match the crop and its hybrid variety and rewrite the following :

	Column I Crop		Column II 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.

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 : **24**

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.

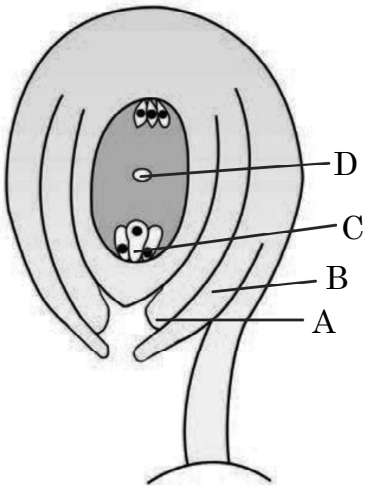
(b) Enlist the benefits of biogas.

SECTION – D

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

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)	
(ii)		(2)	2n–2
(iii)	Trisomy	(3)	
(iv)		(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

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