

LIFE SCIENCE
PAPER-III
OCT-11/04

Signature of Invigilators

Roll No.
(In figures as in Admit Card)

1.

Roll. No.

2.

.....
(in words)

Name of the Areas/Section (if any).....

Time Allowed : 2-1/2 hours]

[Maximum Marks : 200

Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page.
2. Write name of your Elective/Section if any.
3. Answer to short answer/essay type questions are to be written in the space provided below each question or after the questions in test booklet itself. No additional sheets are to be used.
4. Read instructions given inside carefully.
5. Last page is attached at the end of the test booklet for rough work.
6. If you write your name or put any special mark on any part of the test booklet which may disclose in any way your identity, you will render yourself liable to disqualification.
7. Use of calculator or any other Electronics Devices is prohibited.
8. There is no negative marking.
9. You should return the test booklet to the invigilator at the end of the examination and should not carry any paper outside the examination hall.

પરીક્ષાર્થીઓ માટે સૂચનાઓ :

1. આ પૃષ્ઠના ઉપલા ભાગે આપેલી જગ્યામાં તમારી ક્રમાંક સંખ્યા (રોલ નંબર) લખો.
2. તમે જે વિકલ્પનો ઉત્તર આપો તેનો સ્પષ્ટ નિર્દેશ કરો.
3. ટૂંકનોંધ કે નિબંધ પ્રકારના પ્રશ્નોના ઉત્તર દરેક પ્રશ્નની નીચે આપેલી જગ્યામાં જ લખો. વધારાના કોઈ કાગળનો ઉપયોગ કરશો નહીં.
4. અંદર આપેલી સૂચનાઓ ધ્યાનથી વાંચો.
5. આ ઉત્તર પોથીમાં અંતે આપેલું પૃષ્ઠ કાચા કામ માટે છે.
6. આ ઉત્તર પોથીમાં ક્યાંય પણ તમારી ઓળખ કરાવી દે એવી રીતે તમારું નામ કે કોઈ ચોક્કસ નિશાની કરી હશે તો તમને આ પરીક્ષા માટે ગેરલાયક ગણવામાં આવશે.
7. કેલક્યુલેટર અથવા ઈલેક્ટ્રોનિક્સ સાધનોનો ઉપયોગ કરવો નહીં.
8. નકારાત્મક ગુણાંક પદ્ધતિ નથી.
9. પ્રશ્નપત્ર લખાઈ રહે એટલે આ ઉત્તર પોથી તમારા નિરીક્ષકને આપી દેવી. પરીક્ષાખંડની બહાર કોઈ પણ પ્રશ્નપત્ર લઈ જવું નહીં.

FOR OFFICE USE ONLY
MARKS OBTAINED

Question Number	Marks Obtained	Question Number	Marks Obtained
1.		11.	
2.		12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.			

Total Marks obtained

Signature of the co-ordinator

(Evaluation)

LIFE SCIENCE

PAPER-III

Note : This paper contains four Sections. You are required to attempt *all* of them.

SECTION I

Note : Choose any *one* Unit and answer both the questions (Q. No. 1 and Q. No. 2) of the same Units in **500** words. (2×20=40)

Unit I

1. Enumerate important steps of glycogen synthesis and breakdown. Explain how these pathways are regulated.
2. What are G protein linked receptors ? How do they play role in signal transduction ? How ras protein plays important role in carcinogenesis.

OR

Unit II

1. What is BT cotton ? Explain the method to generate transgenic cotton.
2. Discuss plant responses to abiotic stresses.

OR

Unit III

1. Describe the biochemical methods employed in monitoring microbial growth.
2. Write down salient features of different archeobacterial groups.

OR

Unit IV

1. What is fertilization ? Describe the events of fertilization. Comment on significance of fertilization in animals.
2. What is epimorphic regeneration ? Explain the various stages using suitable example. Give significance of dedifferentiation in this process.

Q. No. 1. Unit

Q. No. 2. Unit

SECTION II

Note : Choose any *one* Unit and answer *all* the questions (Q. No. 3 to Q. No.,5) of the same Unit in **300** words. (3×15=45)

Unit I

3. Explain the principle of FISH. Illustrate the technique with suitable example.
4. Differentiate between adaptive and innate immunity.
5. Write in brief ETC components and their function.

OR

Unit II

3. Succulent plants show an unusual mode of carbon assimilation. Justify their survival in the harsh arid environment.
4. Justify the importance of forests in environmental management.
5. Justify that monocots are advanced over dicots.

OR

Unit III

3. The yeasts represent a heterogeneous group of fungi. Comment.

4. Describe the steps involved in production of semi-synthetic penicillins.
5. Explain the concept of rhizoremediation with respect to stabilisation of pollutants.

OR

Unit IV

3. Describe the various steps of Ornithine Cycle.
4. Justify the role of pituitary as a master endocrine gland.
5. What is acid base balance ? Explain the role of kidneys.

Q. No. 3. Unit

Q. No. 4. Unit

Q. No. 5. Unit

SECTION III

Note : Answer the following questions in **50** words each. Attempt *all* questions
(Q. No. 6 to Q. No. 14). (9×10=90)

6. Define allosteric enzyme. Explain its mechanism with suitable example.
7. Where would ^{14}C have to be located in the starting glucose molecule in order to assure that all the ^{14}C activity were released as $^{14}\text{CO}_2$ during fermentation? Explain.

8. Explain double-fertilization and its importance in plants.

9. What is plant conservation ? Explain *in situ* and *ex situ* conservation strategies.

10. Differentiate A, B and Z forms of DNA.

11. Describe the applications of Chi-square Test in Biology.

12. What are morphogenic movements ? Explain briefly.

13. Hypothalamus is a neuroendocrine regulator. Justify.

14. Explain formation of Initiation complex for poly-peptide biosynthesis.

SECTION IV

Note : Answer questions (Q. No. 15 to Q. No. 19) given below in 30 words each.
Attempt *all* questions. (5×5=25)

15. Differentiate between cDNA and genomic DNA.

16. How does secondary metabolites help in plant defense ?

17. Define Beer and Lambert's law.

18. Define the terms differentiation and redifferentiation.

19. What is biomagnification ?

ROUGH WORK

SEAL