

INTERNATIONAL INDIAN SCHOOL DAMMAM
PRELIMINARY EXAMINATION 2014-2015
Biology (Theory)-Class XII

SET A

Time: 3 hours

Max Marks: 70

General instructions:

- (i) All the questions are compulsory.
- (ii) The question paper consists of five sections A, B, C, D and E. Section A contains 5 questions of 1 mark each. Section B is of 5 questions of 2 marks each. Section C has 12 questions of 3 marks each, section D has one value based question of 4 marks whereas Section E is of 3 questions of 5 marks each.
- (iii) There is no overall choice. However an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternative in such questions.
- (iv) Wherever necessary, the diagrams drawn should be neat and properly labeled.

SECTION A

1. Give reason why plants which are distributed by water have a wider range of distribution? 1
2. He had the brain size of 650-800cc, did not eat meat. Which man in course of history of evolution is being talked about in above sentence? 1
3. What does the term "competent" mean in the sentence "competent cells are used up in the transformation experiments"? 1
4. Give one example each of the following interaction 1
 - a) Parasitism
 - b) competition .
5. explain the following statement giving example faulty genes can be corrected to treat the genetic disorders? 1

SECTION B

6. A crane has a DDT level of the 5ppm. what would happen to the population of such birds? Explain giving reasons. 2
7. What is in-situ conservation? explain the various in-situ strategies used for conservation? 2
8. Name and describe the technique by which genetic disorders can be detected even before the birth of the child? Give one of its drawbacks? 2

9. Explain somatic hybridization using an example? 2

10. Explain female heterogamety with a help of the cross?

OR

10'. Give the source of cyclosporine A, Statins, Acetic acid and Lactic acid? 2

SECTION C

11. Fill in the blanks given in the table?

TERM	MEANING
A	Group of sequences that can be read backward and forward
B	Separated bands of the DNA are cut from the Agrose gel and extracted from this gel piece
Plasmid	C
Recombinant protein	D
E	Process of separation and purification before the biosynthetic product is introduced in the market
F	Vessels for the molecular farming

3

12. Name and Give a schematic diagram of a sedimentary biogeochemical cycle ? Name microorganisms involved in it? 3

13. Diagnostic MRI was conducted in a patient of the undifferentiated mass of cell found in his body . It was found to be malignant . Which disease is being talked about. Explain various methods of involved in its detection and cure ? 3

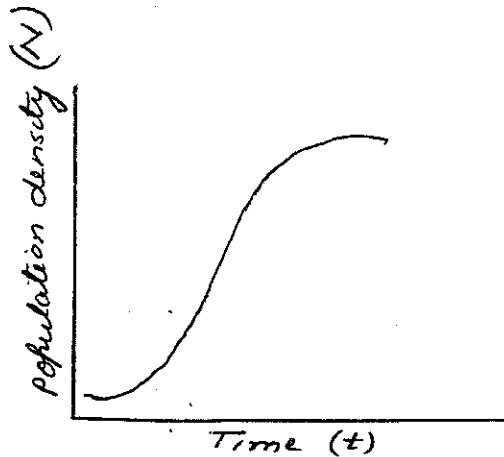
14. Name the abused drugs which are obtained from erythroxyllum and cannabis . Mention their effects on the body and the receptors to which they bind ? 3

15. a) Explain the steps involved in the artificial hybridization of the unisexual and bisexual plants in the angiosperms?
b) Differentiate between aluminous and non-aluminous seeds? 3

16. Explain in brief the steps involved in the plant breeding to create the genetically improved variety of the crop? 3

17. Explain the role of micro -organisms in
a) Sewage treatment b) biogas production c) production of antibiotics 3

18.



- a) Identify the type of the growth curve ?
b) Give the equation which represents this type of the growth curve ?
c) Why is it considered to be a realistic one? 3
19. A decade back enormous vehicular traffic in Delhi had made Delhi rank fourth among polluted cities of the world . Two measures taken by the Government of India brought marked improvement in air quality by 2005 . What were these two measures and how did they reduce air pollution? 3
20. Explain with the help of the example the phenomenon of insertional inactivation? 3
21. Explain in detail the barrier and natural methods available to couples for spacing their children?

OR

- 21'. a) Bishnoi community have in history proved that peoples participation has been there in the conservation? Which incident is being referred to here?
b) Explain the given terms in brief : jhum cultivation and ecosans ? 3
22. A segment of DNA is shown below ;
- 5'— ATGTTTCCGGCGTGA—3'
3'— TACAAAGGCCGCACT—5'
- a) write the sequence of mRNA that will be transcribed from this DNA ?
b) how many amino acids will be transcribed from it ?
c) explain the complexity involved in the transcription of the mRNA in eukaryotes as against prokaryotes ? 3

SECTION D

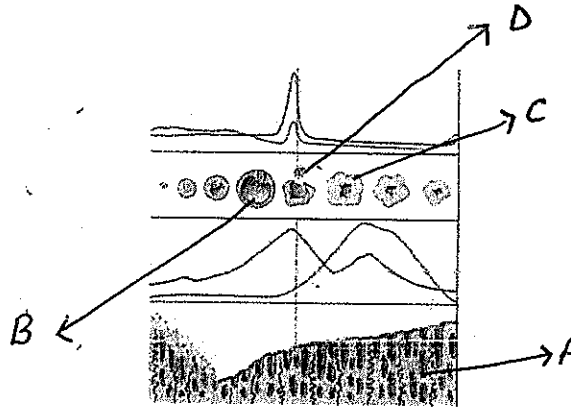
23. A couple quarreled with the hospital authority on the suspicion that their child had been exchanged after birth . the couple based their argument on the basis of the fact that they have blood group A and B respectively whereas their child has blood group O . doctor smiled and Explained .

- a) What values are exhibited by the doctor
- b) Explain how can the child be of O blood group as explained by the doctor .
- c) Name the technique which can help the parents to identify their child and be assured that the child is theirs.

4

24.

SECTION E



- A) Identify A , B, C and D.
- B) Explain the term menarche and menopause ?
- C) Explain the different phases of the menstrual cycle with special reference to the hormones in each phase ? 1+1+3

OR

24'. i) Draw the diagram of the dicot embryo ?

ii) Explain the formation of the mature female gametophytes? Explain the fate of the different cell in the mature female gametophyte after fertilization?

5

25.i) Which RNA is referred to as an adaptor molecule? What is its role in the process of the protein formation?

ii) Explain with the help of the diagram the semiconservative mechanism of DNA replication. the experimental proof of semiconservative mechanism of replication?

OR

25'. Explain with the help of the schematic diagram the process of formation of female

gamete in the human female ? write in detail the process of implantation in the uterus of the developing zygote ? at what stage does the implantation takes place ?

5

26. Explain the role of biotechnology in-

- i) Production of the insect resistance crop.

ii) Production of pest resistant crop

iii) genetically engineered insulin.

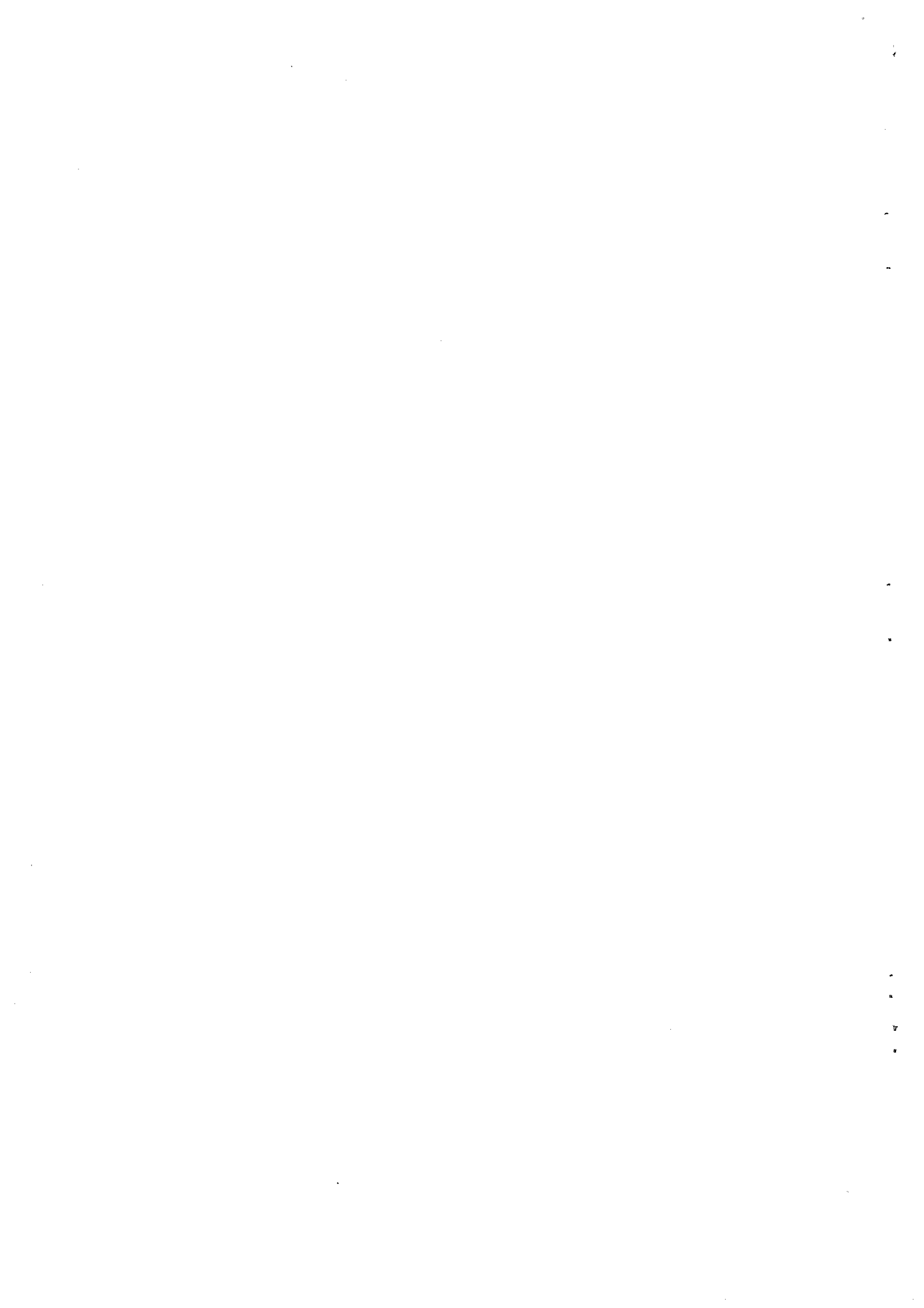
OR

26'. i) Distinguish between the grazing and detritus food chain?

ii) Explain in detail the process of decomposition? Why is it essential for the health of the ecosystem?

5

*****all the best*****



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SECTION A

1. Give reason why individuals produced by the asexual reproduction are genetically similar to the parents? 1
2. Correct the following statement with the reason "mature insulin has three polypeptide chains? 1
3. Give one example each of the following interactions
a) Mutualism b) predation
Mention the significance of each of these interactions? 1
4. What is the significance of adding proteases at the time of the isolation of the DNA? 1
5. He had the brain size of 1400cc, used hides to protect his body and buried his dead. Which man in course of history of evolution is being talked about in above sentence? 1

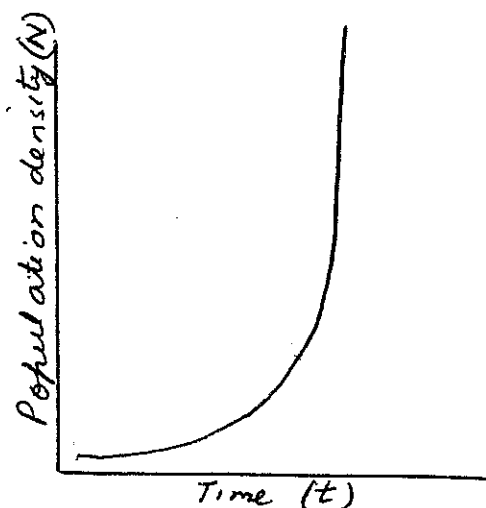
SECTION B

6. Explain the cause of the algal bloom in the water body? mention any two ways in which it will affect the ecosystem? 2
7. How do Cu-T and Cu-7 act as a contraceptive devices? 2
8. Explain the mutational breeding using an example? 2
- Or**
8. What is greenhouse effect? Name the gases involved? Give one commercial use of greenhouse Gases? 2
9. What is ex-situ mean of conservation? Elaborate giving an example? 2
10. Name the condition and give karyotype of the condition for the following 2
a) Has gynaecomastia b) rudimentary ovaries

SECTION C

11. What is meant by the ozone shield ? What is ozone hole? Name two gases that cause damage to this shield ? Give the harmful effect of this on humans ? 3

12.



- Identify the type of the growth curve ?
- Give the equation which represents this type of the growth curve ?
- Explain it while stressing on its characteristic? 3

13. Give reasons :

- Cells of the microspore tetrad are haploid .
- Apple is sweet and fleshy but also a false fruit .
- Pollination does not guarantee the transfer of the right pollen. 3

14. Name and give schematic diagram of a gaseous biogeochemical cycle ? name two ways it is replenished back to the atmosphere ?

Or

14'. A population has been exhibiting the genetic equilibrium. Explain the above principle? Name the underlying principle? Explain two factors that can bring about the change? 3

15. Draw the diagram of the transcription unit ? Explain the process of transcription in the prokaryotes ? 3

16. A diagnostic test showed that a patient was having HIV virus in the body ? What is the full form of the HIV ? Draw the diagram showing the intrusion of this virus in the human body ? Explain the mechanism in brief ? 3

17. Differentiate between the two types of the adaptive immunity in the body 3

18. Explain how the plant breeding has helped in the fighting the hidden hunger ? 3

19. Chemical pesticides and fertilizers are destroying our environment . Microbes can be used as the alternative of these chemicals as fertilizers . Explain the role of the microbes as bio control agents ? 3

20. Fill in the blanks given in the following table?

TERM	MEANING
Polycistronic genes	A
Restriction endonucleases	B
C	Nucleotide sequence having a single base difference
D	Specific DNA sequence responsible for initiating the replication
plasmids	E
introns	F

21. Explain with the help of diagram the technique used to amplify the gene of interest? 3

22. Explain at least three methods available to childless couple for fulfilling their desire of having children? 3

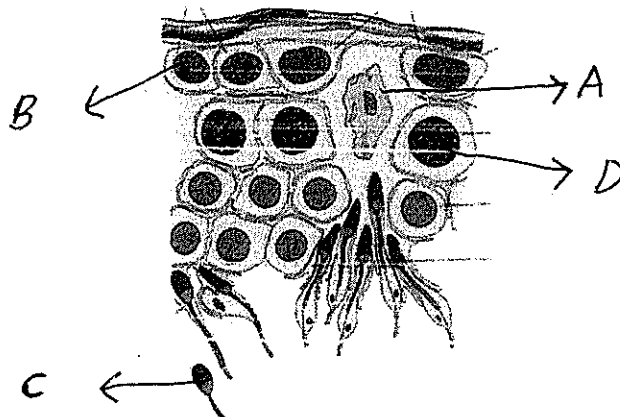
SECTION D

23. During primary art class teacher asked charles to separate green color cubes from the yellow color ones . she observed that he was not able to do it . after the school was over teacher reported the matter to the Charle's parent .

- What values were shown by the teacher
- What is the biological reason for this defect?
- Give the technical term for this defect and explain it with the help of at least one typical example ?

SECTION E

24.



- Identify A ,B ,C and D
- Explain the process of spermatogenesis with the help of the flow chart ?
- Explain why the process can be referred to as the continuous process?

OR

24' a) With the help of diagram trace the development of the mature male gametophyte in the flowering plants ?

b) Gametes are always haploid though the organism forming them may be haploid or diploid?

25. i) In eukaryotes the length of the DNA molecule is enormously large .explain how such a long molecules fits into the tiny chromosomes seen at the metaphase ?
ii) Why is DNA more stable molecule than the RNA ?
iii) UNAMBIGUOUS and DEGENERATE are some of the salient features of the genetic code .Explain?

Or

25'. Write short notes on –

- a) Proper sequence of stages in hydrach succession
- b) Define age pyramids ?diagrammatically represent different types of the age pyramids?
- c) With examples differentiate between the analogy and homology ?

5

26. Name any two cloning vectors? Describe the features required to facilitate cloning into a vector ?

Or

26' a) Expand and explain MOET

b) Give the causative agent and symptoms of typhoid and dysentery

c) Explain the endosperm development in the angiosperm and its significance ?

***** all the best *****