



# St. Xavier's Sr. Sec. School

Delhi-54

Pre Board Examination 2016-17  
Std. 12  
09-01-2017

Set 1

Max. Marks : 70  
Time : 3 hrs.

BIOLOGY

## General Instructions:-

- i) This paper consists of 26 questions in five sections.
- ii) Section - A has 1 to 5 questions carrying one mark each.
- iii) Section - B has 6 to 10 questions carrying two mark each.
- iv) Section - C has 11 to 22 questions carrying three mark each.
- v) Section - D has 23 question of carrying four marks. (Value Based)
- vi) Section - E has 24 to 26 questions carrying five mark each.
- vii) There is internal choice in one 2 marks question, one 3 marks question and all 5 marks questions. Attempt only one of the choices in such questions.

### SECTION –A (1 x 5 = 5 marks)

1. The mechanism to prevent the self pollen from fertilizing the ovules by inhibiting pollen germination or pollen tube growth on the pistil. What is that mechanism?
2. How many chromosomes are in a gamete of an organism that has 46 chromosomes in its cells?
3. On examining a patient, he had a mass of proliferating cells damaging the neighboring tissues also. The doctor explained the disease to the patient. Name the disease and its property.
4. What are the advantages of Molecular diagnosis technique?
5. How is proinsulin different from functional insulin in humans?

### SECTION – B (2 x 5 = 10 marks)

6. How many chromosomes would you expect in the following, if the diploid number of chromosomes in an angiospermic plant is 18.
  - i) Endosperm...
  - ii) Embryo...
  - iii) Antipodal cells..
  - iv) Integument and Nucellus..
7. What is Thermus aquaticus and what is its role in amplification of a gene of interest?
8. Write four factors which control the size of population.
9. Define Biomagnification. Give its one example of aquatic food chain showing Biomagnification.
10. What are EcoSan? (OR) Plastic Recycling for roads?

### SECTION - C (3 x 12 = 36 marks)

11. A sperm has just fertilised a human egg in the fallopian tube. Trace the events that the fertilised egg will undergo up to the implantation of the blastocyst in the uterus.
12. Describe the three manners in which fertilisation of human ovum by a sperm can be prevented?
13. Give the scientific term for the process of copying genetic message from one strand of DNA into RNA. Only one strand of DNA is used during transcription. Why?
14. Giraffes who in an attempt to forage leave on tall trees had to adopt by elongation of their necks." Make use of this statement to enumerate the main points of Lamark's theory and Darwin's theory of Natural selection.



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15. How ZW sex determination system differs from XY?  
(OR)  
In snap dragon a plant with red flowers was crossed with a plant with white flowers. Work out all the possible genotypes and phenotypes of F1 and F2 generations. Comment on the pattern of inheritance in this case.
16. Name the genes that constitute an operon. How does Lac Operon get switched on in the presence of Lactose?
17. Since the origin of life on earth and evolution there have been 5 episodes of mass extinction, but the current rate of extinction is 100-1000 times. What are the main causes of high extinction rate and how is it going to harm human beings?
18. How are auto immune disease different from immuno deficiency disease? Give one example of each in human.
19. a) What is meant by addictive disorder?  
b) Name any two opiate narcotics.  
c) Mention any two ways how opiate narcotics affect human body.
20. Describe a biogas plant.
21. Why is Agrobacterium mediated genetic transformation described as natural genetic engineering in plants?
22. Represent diagrammatically the steps involved in rDNA technology.

## SECTION – D (1 x 4 = 4 marks)

23. Do you think that friends can influence one to take alcohol/drugs? If yes, how may one protect himself/herself from such an influence?

## SECTION - E (3 x 5 = 15 marks)

24. Trace the events that would take place in a flower from the time the pollen grain of the same species falls on the stigma up to the completion of fertilisation.  
(OR)  
Draw a diagram of human female reproductive system and label any ten parts in it.
25. How do you relate dominance, co-dominance and incomplete dominance in the inheritance of character?  
(OR)  
Describe the process of DNA replication.
26. In terrestrial ecosystem DFC and GFC are interlinked at certain level. Justify the statement.  
(OR)  
What is meant by ozone shield? Name two ozone depleting substances. How do the ozone - depleting substances affect the ozone shield?

-X-X-X-X-X-