

**DELHI PUBLIC SCHOOL, JAMMU**  
**Assignment for Pre Board-II**  
**(2018-19)**

**Subject: Biology**

**Class: XII**

**Topics included are:**

- 1. Reproduction in organisms, Sexual reproduction in flowering plants, Human reproduction and Reproductive health.**
- 2. Principles of Inheritance and Variation, Molecular Basis of Inheritance, Evolution.**
- 3. Human Health and Diseases, Strategies for Enhancement in Food Production, Microbes in Human welfare.**
- 4. Biotechnology: Principles and Processes, Biotechnology and its applications.**
- 5. Ecology and Environment**

- Q1. A tissue culture experiment has been performed with a plant tissue infected with TMV. Meristematic tissue produces healthy plant. Reason out the possibility of obtaining such result. 1
- Q2. State a method of cellular defence which works in all eukaryotic organisms. 1
- Q3. In case of an infertile couple, the male partner can inseminate normally but the mobility of sperms is below 40 percent. Judge, which kind of ART is suited in this situation to form an embryo in the laboratory, without involving a donor? 1
- Q4. Write the two specific codons that a translational unit of m RNA is flanked by one on either sides. 1
- Q5. The alarming population growth is leading to scarcity of basic requirements. Enumerate and justify any two population control measures to overcome this problem. 2
- Q6. Both Down's syndrome and Turner's syndrome are examples of chromosomal disorders. Cite the differences between the two. 2
- Q7. Success rate of artificial insemination in cattle is fairly low. Identify any other mean to improve the successful production of hybrids. State the advantages of this technique. 2
- Q8 a) Patients who have undergone myocardial infarction are given clot buster. Mention the clot buster administered and its microbial source. 1+1
- Q9. Interpret two effects of loss of biodiversity in a region. 2
- Q10. How has biotechnology helped in improving life of Diabetic people? 3
- Q11. Mention the role of histone proteins in packaging of DNA. 3

- Q12. With the help of a suitable example mention the role of microbes in (a) Single cell protein (b) Organic farming. 1.5+1.5
- Q13. Differentiate between Benign and Malignant tumours. 3
- Q14. Draw and label the enlarged view of microsporangium. 3
- Q15. What are Sexually Transmitted Diseases (STDs)? State some symptoms of STDs? Give two simple principles to prevent infections. 3
- Q16. Person is born with a hereditary disease, suggest the possible corrective method for it. Illustrate by giving a specific example. 3
- Q17. Why males are heterogametic? Can there be female heterogamety. Give example if any. 3
- Q18. A sportsperson was tested positive for cannabinoid what are these? From where are these extracted? What are its effects on human body? 3
- Q19. What is Bt toxin? Name an organism that produces it? How has man exploited it? 3
- Q20. In pBR322, foreign DNA has to be introduced in tet<sup>R</sup> region. From the restriction enzymes given below, which one should be used and why: PvuI, EcoRI, BamHI: 1+2
- b) Give reasons, why the other two enzymes cannot be used.
- Q21. A cross is made between different homozygous pea plants for contrasting flower positions. 1+1+1
- a) Find out the position of flowers in F1 generation on the basis of genotypes.
- b) Work out the cross upto F2 generation.
- c) Compute the relative fraction of various genotypes in the F2 generation?
- Q22. Describe the components of an ecosystem. 3
- Q23. What is co-dominance? Explain with reference to ABO blood type in human beings. 5
- Q24. Explain how can a gene be made to induce the metabolic process? 5
- Q25. Diagrammatically represent the experimental set up that proves Oparin - Haldane hypothesis. 5
- Q26. Explain the process of protein synthesis from processed m-RNA. 5
- Q27. Trace the development of male gametophyte of angiosperm upto two cell stage. 5
- Q28. What is ecological pyramid? Describe the different types of pyramid? 5
- Q29. Why earthworm is considered a farmer's friend? Explain humification and mineralisation occurring in a decomposition cycle? 5
- Q30. Construct a grazing food chain and detritus food chain. 5