BIOLOGY
PAPER – 1
(THEORY)

(Maximum Marks: 70)

(Time allowed: Three hours)

(Candidates are allowed additional 15 minutes for only reading the paper.
They must NOT start writing during this time)

Std: XII

---

*This paper comprises of **TWO PARTS** – Part I and Part II.*
*Answer **all** questions.*
Part I contains twenty questions of one mark each.
Part II consists of Section A, B & C.
*Section A contains **seven** questions of **two** marks each*
*Section B contains **seven** questions of **three** marks each, and*
*Section C contains **three** questions of **five** marks each.*
Internal choices have been provided in two questions in Section A, two questions in Section B and in all three questions of Section C.

PART I (20 Marks)

Answer **all** questions

Question 1

(a) Answer the following questions briefly and to the point: **(8x1)**

(i) Name the vegetative propagules in the following
   a. Sponge
   b. Agave

(ii) Name the interspecific interaction in which one is detrimental while the other is neutral

(iii) Give the role of GEAC

(iv) What are Ramsar sites?

(v) Mention the use of *Propionibacterium shermanii*

(vi) Give one reason for statutory ban for amniocentesis

(vii) Write a significant difference between continuous and seasonal breeders

(viii) Give two basic assumptions of Lamarckism

(b) Each of the following has four choices. Choose the best option in each case: (4x1)

(i) The membranous cover of the ovum at ovulation is

1) Zona pellucida
2) Zona radiata
3) Corona radiata
4) Chorion

(ii) Decreased BOD is an indication of

1) High carbondioxide content
2) High oxygen content
3) High microbial activity
4) Low microbial activity

(iii) A heterozygous tall plant is crossed with a homozygous dwarf plant, then the percentage of progeny having dwarf character is

1) 0%
2) 25%
3) 50%
4) 100%

(iv) An insect resistant variety of Brassica

1) Pusa komal
2) Pusa swarnim
3) Pusa gaurav
4) Pusa sadabahar

(c) Give one significant contribution of each of the following scientists: (4x1)

(i) Henking
(ii) P.Maheswari
(iii) S. Ochoa
(iv) E. Wilson

(d) Define the following

(i) PAR (2x1)
(ii) Cistron

(2x1)

(e) Give reason

(i) Down syndrome may occur in both sexes.

(ii) Enzyme cellulose is used for isolating genetic material from plant cells but not from animal cells.

PART II

SECTION A (14 Marks)

(Answer **all** *questions)*

(2)

Question 2

(a) Draw a labelled diagram of antibody

OR

(b) Draw a labeled diagram of HIV virus

(2)

Question 3

Explain the narrow utilitarian and broadly utilitarian arguments in favor of biodiversity conservation

(2)

Question 4

a. Name the plant from which cannabinoids obtained
b. How do barbiturates affect the body

(2)

Question 5

What is a bioreactor? Name the two types and give one difference between the two.

(2)

Question 6

Mention the source and significance of single cell protein

(2)

Question 7

Expand:

1) IARI **2)**ISCI **3)** NACO **4)** LSD

(2)

Question 8

Explain any four out breeding devices in plants

OR

Explain how placenta acts as an endocrine gland.

SECTION B (21 Marks)

(Answer **all** questions)

Question 9 (3)

Insertional inactivation of an enzyme is used as a selectable marker to differentiate betwee recombinants and non-recombinants. Explain

Question 10 (3)

a. Name any two metals used in a catalytic converter
b. How does electrostatic precipitator work to reduce air pollution?

Question 11 (3

What peculiarities did Darwin notice in the finches of Galapagos Islands? In which conclusi did he reach from this?

Question 12 (3

Explain rivet popper hypothesis. Name the ecologist who proposed it.

Question 13 (3

Write a short note on human genome project

Question 14 (3

Describe the development of endosperm in angiosperms

Question 15 (3

Explain pleiotropy with reference to pea seeds

OR

Recently a baby girl has been reported to suffer from hemophilia. How is it possible? Explai with the help of a cross.

SECTION C (15 Marks)

Question 16 **(5)**

a. Explain the process of sewage water treatment before it can be discharged into natural water bodies

b. Give the difference between standing crop and standing state.

OR

a. Give an account of gene therapy with reference to the treatment of SCID.

b. Define the following

1. Senescence
2. Secondary succession
3. Heterosis
4. Endemic organism

Question 17 **(5)**

a. Explain the hormonal control of spermatogenesis

b. Describe the landmarks of development of human embryo

OR

a. Describe the sequence of events from zygote till the implantation of human blastocyst in the uterus

b. Explain the luteal or secretory phase of ovarian cycle

Question 18 **(5)**

a. Construct a pyramid of energy showing four trophic levels, when 1000000 J of sunlight available. Label all the levels and show the amount of energy available at each level

b. Explain polygenic inheritance using Punnet square

OR

a. Describe the effects of radioactive pollution. Give some measures of its control

b. What is transcription? Explain the post transcriptional processing in eukaryotes and gene expression in prokaryotes.