ISC SEMESTER 2 EXAMINATION
SPECIMEN QUESTION PAPER
BIOLOGY PAPER 1 (THEORY)

Maximum Marks: 35

Time allowed: One and a half hour

*Candidates are allowed an additional **10 minutes** for **only** reading the paper.*

*They must **NOT** start writing during this time.*

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*Internal choices have been provided in **one** question in **Section B***
*and **one** question in **Section C**.*

The intended marks for questions or parts of questions are given in brackets. [ ]

SECTION A – 7 MARKS

Question 1

(i)   Give the biological name of the causative agent of gonorrhoea.   **[1]**

(ii)   Sonora – 64 is a variety of: **[1]**

    (a)   Wheat

    (b)   Rice

    (c)   Maize

    (d)   Sugarcane

(iii)   **Assertion**: PAN is a secondary pollutant.   **[1]**

    Reason: The secondary pollutants are produced by the combination of primary emitted pollutants in the atmosphere.

    (a)   Both assertion and reason are true, and reason is the correct explanation of assertion.

    (b)   Both assertion and reason are true, but reason is not the correct explanation of assertion.

    (c)   Assertion is true but reason is false.

    (d)   Both assertion and reason are false.

(iv)   Give one significant contribution of Prof. R. Mishra.   **[1]**

(v)   Expand the term ADA.   **[1]**

(vi)   A substance that stimulates the production of antibodies is called _____.   **[1]**

(vii)   Why does a large ozone hole develop specifically over Antarctica?   **[1]**

SECTION B (16 MARKS)

Question 2

Briefly explain the role of the following in providing defense against infections in human body:

(i)   B-cells   **[1]**

(ii)   T-cells   **[1]**

Question 3   **[2]**

What is the role of a probe in recombinant DNA technology?

Question 4   **[2]**

The level of air pollution is very high in a city. Suggest *any four* measures which should be taken by the government to control it.

Question 5   **[2]**

(i)   If 20000 K Cal energy is available at the level of producers, what will be the amount of energy available at the level of secondary consumers.

OR

(ii)   The number of mice in a laboratory was 100 on a particular day. After one year their number increased to 120. Calculate the growth rate in the population.

Question 6   **[2]**

Give *any four* advantages of *mutation breeding*.

Question 7   **[2]**

Name and describe the technique that helps in separation of DNA fragments.

Question 8   **[2]**

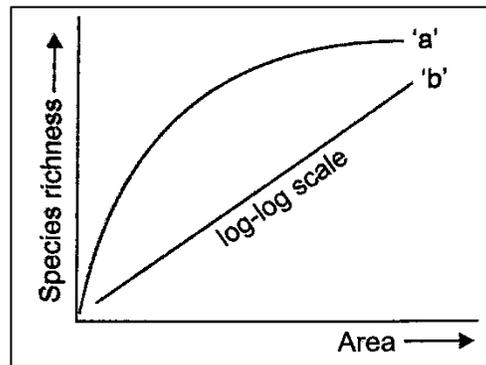Which molecules are called *molecular scissors*? Why are they called so?

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Question 9 [2]

Differentiate between *primary succession* and *secondary succession* with appropriate examples.

SECTION C (12 MARKS)

Question 10 [3]

Study the graph given below and answer the following questions:

(i)   Explain the ecological principle represented by the graph and write a mathematical expression for the same.

(ii)   What will happen if the slope of the line 'b' becomes steeper?

Question 11 [3]

Explain the steps involved in the process of plant breeding.

Question 12 [3]

The rDNA technology has provided a method to control the nematode parasite *Meloidogyne incognita*. Explain the principle involved in this technique.

Question 13 [3]

(i) Consider the amount of organic matter at the different trophic levels in an ecosystem given below:

Trophic Level	Amount of organic matter (in Kg)
Tertiary consumers	250
Primary consumers	150
Primary producers	100
Secondary Consumers	200

On the basis of the data provided above, construct an ecological pyramid. Comment upon its nature giving at least one example of the type of organism occupying each of the above mentioned trophic levels.

OR

(ii) On the basis of the demographic data of a country given below, construct an age pyramid and explain whether the population is stable, declining or growing.

Age group	No. of individuals
Pre-reproductive	20,000
Reproductive	15,000
Post-reproductive	10,000