strawberry fields
HIGH SCHOOL

SCIENCE Paper – 3
(Two Hours)

Answers to this Paper must be written on the paper provided separately.
*You will **not** be allowed to write during the first **15** minutes.*
This time is to be spent in reading the question paper.
The time given at the head of this Paper is the time allowed for writing the answers.

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*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***
The intended marks for questions or parts of questions are given in brackets [ ].

SECTION – A (32 Marks)
*(Attempt **all** questions from this Section.)*

Question 1

a) Select the correct answers to the questions from the given options. **[7]**

i) Loss of water in form of water vapours from aerial parts of the plant:

a) Translocation
c) Transpiration
b) Translucent
d) Transformation

ii) Nutrients required in larger concentration by the plant:

a) Micronutrients
c) Macronutrients
b) Macrocosmic
d) Macrophages

iii) Branched underground stem with scale leaves:

a) Tuber
c) Rhizome
b) Radish
d) Tomato

iv) Leaves of a plant which produces buds in the notches in their margins:

a) Onion
c) Bryophyllum
b) Ginger
d) Carrot

v) The first cell formed after fertilisation is called:

a) Embryo
c) Zygote
b) Cell
d) Tissue

vi) **Assertion (A)**: 'Lotus' and 'Trapa' are insect-pollinated aquatic plants.
Reason (R): Though 'Lotus' and 'Trapa' are aquatic plants, their flowers are not submerged in water but are exposed to air.

a) A is True and R is False
b) A is False and R is True
c) Both A and R are True
d) Both A and R are False

vii) The full-term development of an embryo in the uterus:

a) Implantation
b) Fertilisation
c) Gestation
d) Regeneration

viii) The organisms feeding on dead and decaying organic matter comprise:

a) Producer
b) Saprotrophs
c) Consumers
d) Autotrophs

ix) Abiotic agent of pollination:

a) Bee
b) Elephant
c) Wind
d) Bird

x) Internally, uterus opens into:

a) Urethra
b) Oviduct
c) Vagina
d) Vulva

xi) Stress in teenagers can be managed by:

a) Excessive caffeine intake
b) Keeping themselves extra busy
c) Deep breathing exercise
d) Setting big goals

xii) Lila observed that a pond with clear water was covered up with a bacterium within a week. By which method of reproduction did the bacteria spread so rapidly?

a) Fragmentation
b) Binary Fission
c) Budding
d) Spore formation

xiii) Which one of the following is not a part of female reproductive organs?

a) Uterus
b) Oviduct
c) Ovary
d) Penis

xiv) Translocation is carried out by:

a) Sclerenchyma
b) Fibres
c) Xylem Vessel
d) Parenchyma

b) State whether the following statements are true or false. If false, rewrite the correct form of statement: **[5]**

i. Root hairs are multicellular structures.
ii. Growing mass of undifferentiated plant cell is called hybrid.
iii. In males and females, sex organs occur in different forms.
iv. Potato is an example of a biennial plant.
v. After fertilisation, ovule develops into a seed.

c) Name the following: **[5]**

i. The downward and upward movement of food to all parts of the plant.
ii. The fusion of male and female gametes to produce zygote.
iii. Natural way of fixing of the embryo in the wall of the uterus.
iv. Joining two plants together so that they grow as one plant.
v. The process by which solid, liquid and gases move from a place of high concentration to low concentration.

d) Match the items given in column I with the most appropriate ones in column II and rewrite the correct matching pairs: **[5]**

Column I	Column II
i. Dead cells with tapering ends	1. Regeneration
ii. Fragmentation	2. Yeast
iii. Generating lost parts	3. Tracheid's
iv. Budding	4. Spirogyra
v. Active transport	5. Energy

e) Fill in the blanks:

[5]

i. _____ cells are living, thin walled, elongated found attached to sides of sieve tubes.
ii. _____ is flattened part of the stalk on which whorls of flower are attached.
iii. _____ is mixture of fluid and sperms.
iv. _____ is a chemical substance secreted by the endocrine gland directly into the blood.
v. Producers always occupy the _____ level in a food chain.

f) Give <u>one point of difference</u> between the following pairs: **[5]**

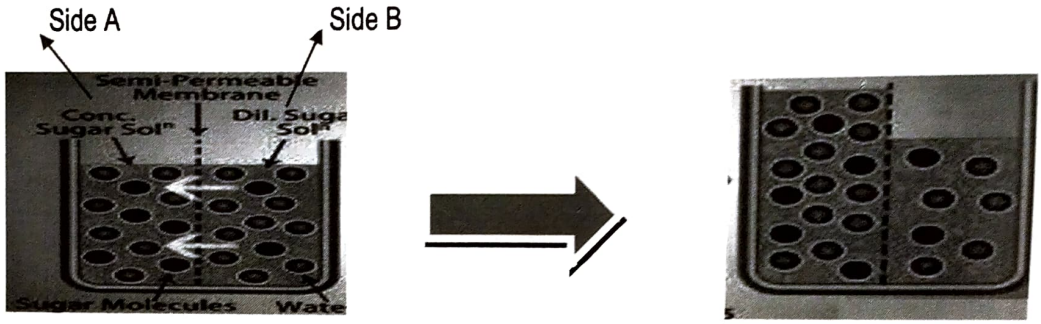
i. Asexual and Sexual Reproduction
ii. Egg and Sperm
iii. Food chain and Food web
iv. Symbiosis and Parasitism
v. Active Transport and Diffusion

SECTION – B (48 Marks)

*(Attempt **any four** questions from this Section.)*

Question 2

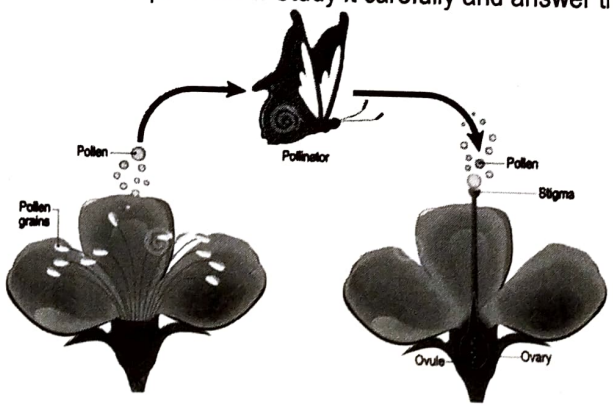
i. Define Ascent of Sap. [1]
ii. Give four differences between Xylem and Phloem. [4]
iii. Discuss any two conditions that alter the rate of transpiration. [2]
iv. Explain two reasons why root hairs are well-suited for absorbing water from the soil. [2]
v. Study the diagram given below and answer the questions that follow: [3]



a) Name and define the phenomenon shown in this experiment.
b) In the above figure, two kinds of molecules are shown. Mention which molecules are of the solute and which are solvent.
c) What conclusion do you draw from the above experiment?

Question 3

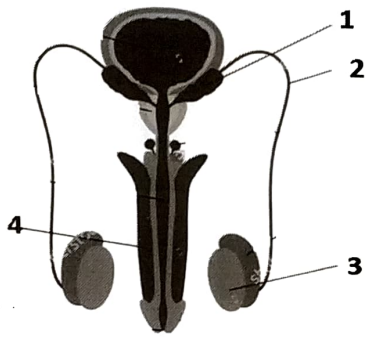
i. How is artificial pollination useful for farmers? [2]
ii. Explain the process of tissue culture. [3]
iii. Briefly discuss the two reproductive whorls of a flower. [2]
iv. State two characteristics of wind pollinated flowers [2]
v. The diagram given below shows pollination. Study it carefully and answer the following questions. [3]



a) Name the type of pollination shown in the above picture
b) Define the type of pollination in the above picture.
c) Write any two features of such flowers.

Question 4

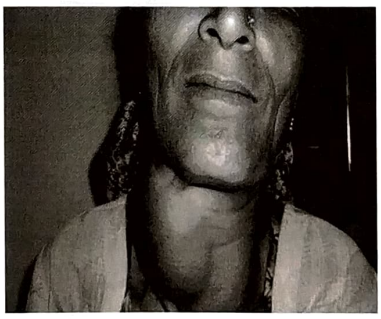
i. Give one function of the 'fallopian tube', 'uterus' and 'ovaries'. [3]
ii. Name all the organs of female reproductive system. [2]
iii. Give reason why testes in mammals are located outside the abdomen in scrotal sacs. [2]
iv. Draw and label the human sperm. [2]
v. The given diagram is of male reproductive system [3]



a) Label the parts marked 1- 4.
b) Give functions of the part marked 2.
c) Name any two glands associated with male reproductive system.

Question 5

i. Why is the pituitary gland called the "Master gland"? **[1]**
ii. State **any two** ways by which insulin lowers glucose from the blood stream. **[2]**
iii. Name the hormone secreted during emergency. How does it help us to fight stress? **[2]**
iv. Give **one point of difference** between the following pairs: **[3]**
   a. Egg and Sperm
   b. Gestation and Implantation
   c. Budding and regeneration
v. Observe carefully the diagram given below answer the following questions.



a) Name the hormonal disorder. How is it caused? **[2]**
b) Name the endocrine gland which is associated with it. **[1]**
c) Name the hormone and give any one function of it. **[1]**

Question 6

i. What would happen if producers are not present on Earth? [1]

ii. Give **<u>one point of difference</u>** between the following pairs: [3]
   a. Scavengers and Detritivores
   b. Predation and Symbiosis
   c. Food chain and food web

iii. How is existence of plant life integral to continuity and development of most ecosystems? [2]

iv. Why do we carry out artificial pollination? [2]

v. The given picture depicts an ecosystem. Write the names of any four of its biotic and abiotic components each. [4]