

*Name of the student:* ..... *Date:* ...../...../.....

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➤ **Technology** is the sum of techniques, skills, methods, and processes used in the production of goods or services or in the accomplishment of objectives, such as scientific investigation.

➤ **Biology** is the natural science that studies life and living organisms, including their physical structure, chemical processes, molecular interactions, physiological mechanisms, development and evolution.

Q. What is **Biotechnology**?

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➤ **Tissue** is a cellular organizational level between cells and a complete organ. A tissue is a group of similar cells and their extracellular matrix from the same origin that together carry out a specific function.

➤ **Culture** is a method of multiplying microbial organisms by letting them reproduce in predetermined **culture** medium under controlled laboratory conditions.

Q. What is **Tissue Culture**?

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➤ **Tissue culture** allows the production and propagation of genetically homogeneous, disease-free plant material.

Q. Write two aims of tissue culture.

1) .....

2) .....

➤ **Totipotent stem cells** are **cells** that have the capacity to self-renew by dividing.

Because of having \_\_\_\_\_, tissue culture is possible in plant.

➤ Pollen grain, terminal or lateral buds, parts of root are cultured in plant tissue culture.

➤ A **tissue culture** typically takes 10-14 weeks, beginning with clipping very small leaf, stem and root samples to obtain cells and then letting them establish themselves in a nutrient mix, where they eventually multiply. Those cells grow into leaves and stems without roots.

Q. What is explant?

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❖ Necessary materials for tissue culture:

Mother plant, Explant, Glass container, Minerals nutrients, Vitamins, Phytohormones, Sucrose, Agar and Autoclave machine

❖ Steps of tissue culture:

- a) Selection of mother plant
- b) Preparation of culture medium
- c) Establishment of sterilized medium
- d) Transfer in root developing medium
- e) Transfer to natural environment or to field level

Q. How will you prepare a culture medium for tissue culture?

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❖ The following figure indicates five stages of tissue culture:



Q. Describe the process that the above figure indicates.

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