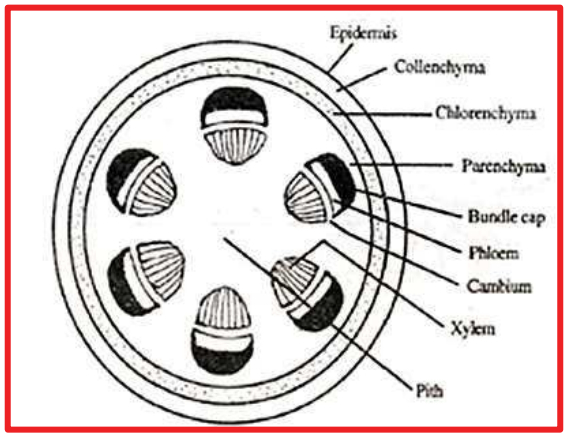
# HIGHER SECONDARY PRACTICAL EXAMINATION, 2021

(SPECIAL SCHEME AND QUESTION PAPER DUE TO COVID PANDEMIC)

## BOTANY

1. Prepare a T.S of the given specimen 'A' and identify giving reasons.Draw the ground plan and label the parts.
   Leave the preparation for valuation
   Preparations-2, Diagram-l, Labelling- ½ (at least two main parts), Identification ½ Reason- 1
   ( 2 features for stem/root and other two for dicot/monocot) (Score 5)
   [Note: practice taking sections of any two specimens ( a root and a stem) from Dicot stem/Monocot stem and Monocot root].

**1.DICOT STEM**



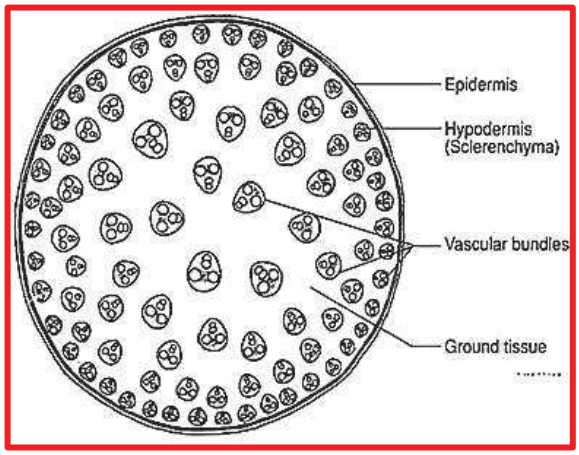

1. Vascular bundles are conjoint and collateral.
2. Xylem is endarch.
3. Cortex is heterogenous.

.....hence it is a stem.

1. Vascular bundles are limited in number.
2. Vascular bundles are arranged in broken ring manner.
3. Vascular bundles are open.

.....hence it is a dicot stem

**2.MONOCOT STEM**



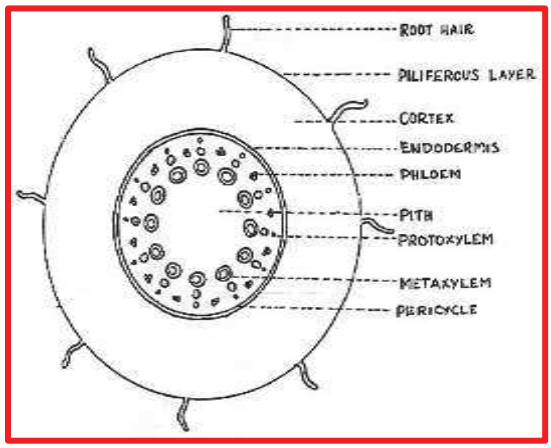

1. Vascular bundles are conjoint and collateral.
2. Xylem is endarch.

.....hence it is a stem.

1. Vascular bundles are numerous and scattered in ground tissue.
2. Vascular bundles are closed
3. Homogenous ground tissue

.....hence it is a monocot stem

**3.MONOCOT ROOT**




1. Vascular bundles are radial.
2. Xylem is exarch.
3. Cortex is homogenous.....hence it is a root.
1. Xylem and phloem groups are numerous in number.
2. Pith is large
3. Round or oval outline of xylem.

.....hence it is a monocot root

II.Observe the given specimen 'B'

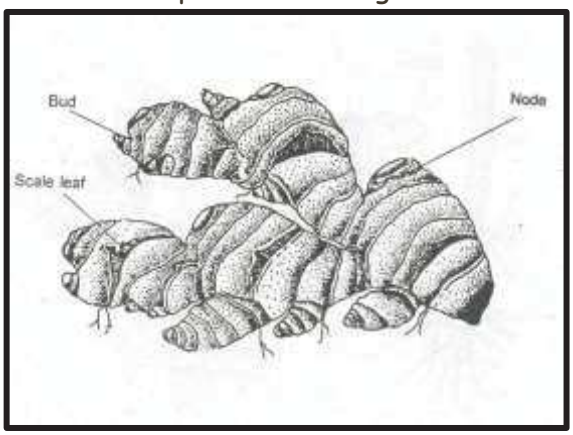
a) Name the vegetative propagule -----1

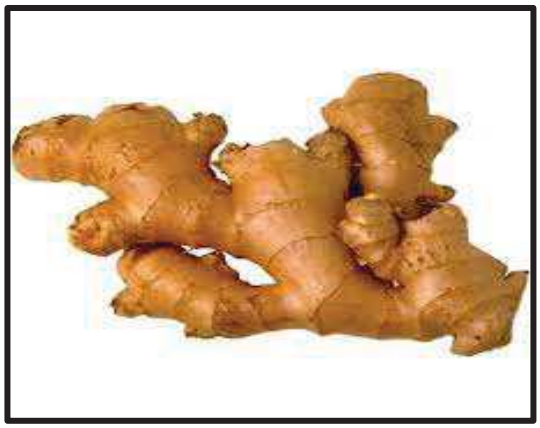
b) Which plant part is modified -----1

c) Draw a neat labelled diagram (Labelling - at least two parts). -----1 (3 Score)

a. 1. Name of vegetative propagule : Rhizome

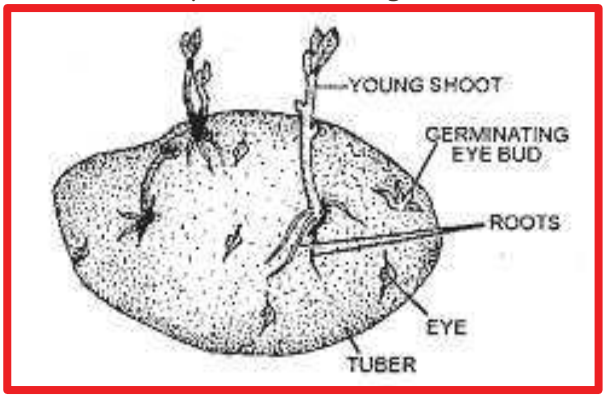
2. Modified part : underground stem

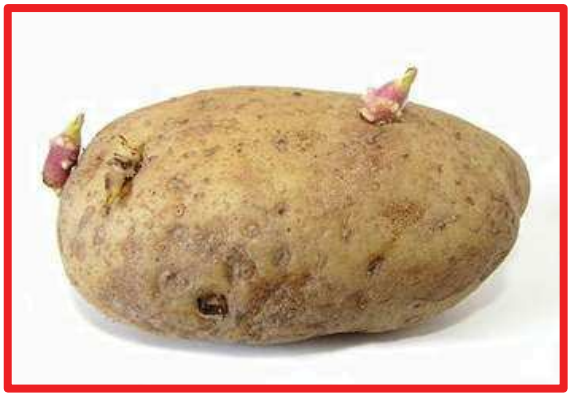


b. 1)Name of Vegetative Propagule:Stem tuber

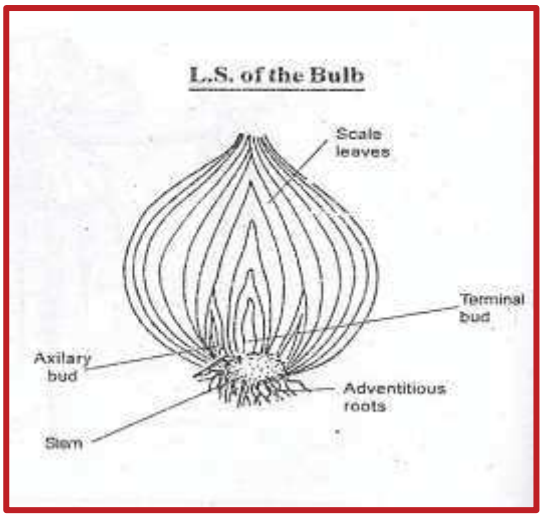
2)Modified part : underground stem

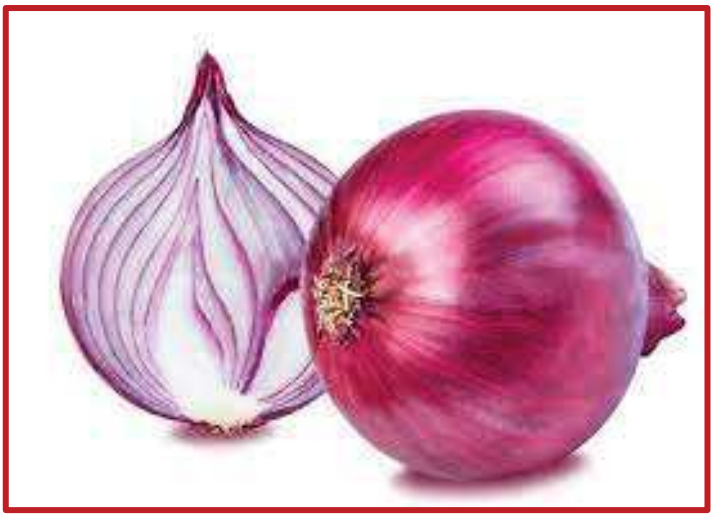


**c)**1. Name of vegetative propagule : Bulb

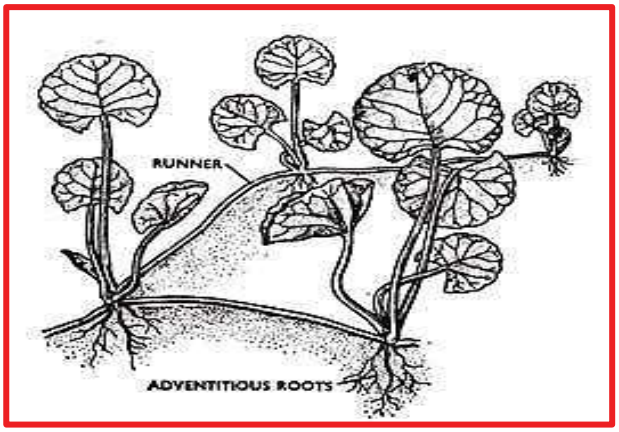
2. Modified part : underground stem



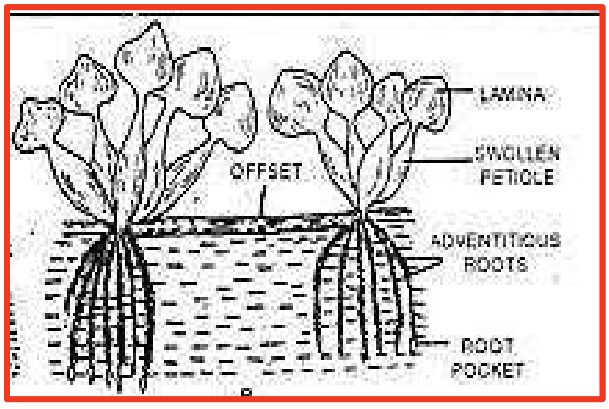
**d)**1. Name of vegetative propagule : Runner

2. Modified part : Sub aerial stem

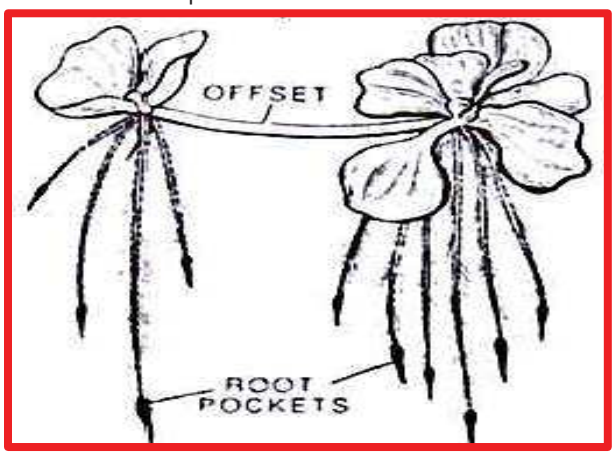



**e)**1. Name of vegetative propagule : Offset

2. Modified part : Sub aerial stem

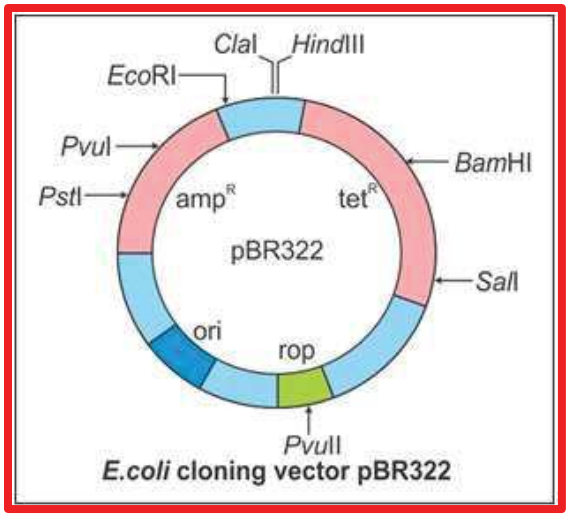



**f)** 1. Name of vegetative propagule : Offset
2. Modified part : Sub aerial stem



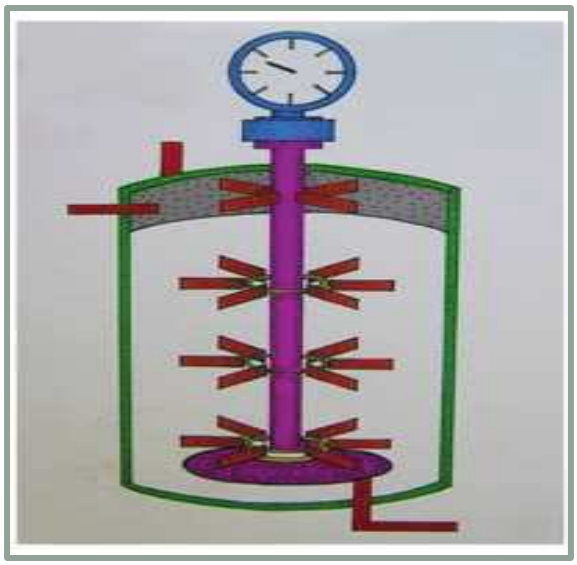

III. Identify the given Photograph of 'C ' (Bioreactor, Bt cotton or Cloning vector may be given (identification- ½ , any one reason for its identification- ½ ) (Score 1)

**Bt Cotton**
1. It is a transgenic insect resistant plant
2. Cry gene taken from *Bacillus thuringiensis* is introduced into this plant.




**CLONING VECTOR**
1. They are the carriers used to introduce a foreign gene into host
2. Most commonly used plasmid vector is pBR 322

.



**BIO-REACTOR**

1. It is large vessel used to produce specific products, enzymes
2. Raw materials are biologically converted into products

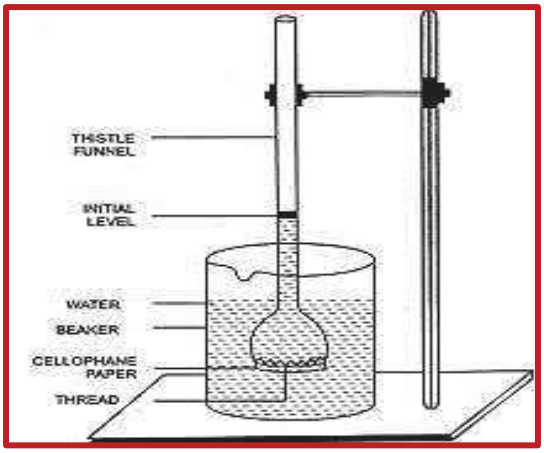
.

IV.Write the aim of the experiment 'D'. Draw and label the parts

(aim- ½ labelled diagram – 1 (score :1 ½) )

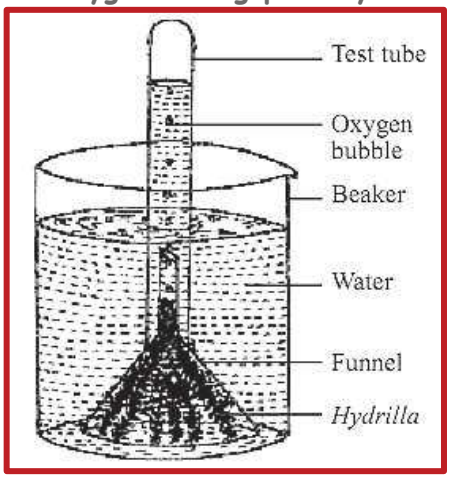
( At least 4 experiments should be provided)

**1,Thistle Funnel experiment…….Aim To demonstrate Osmosis**



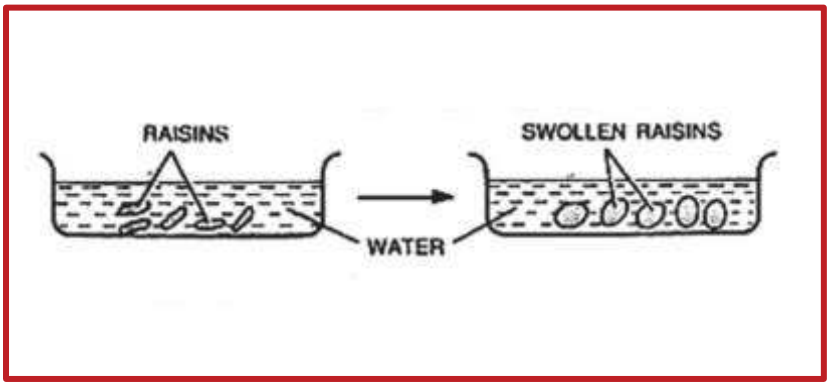

**2.Hydrilla Experiment**

**Aim. To demonstrate evolution of Oxygen during photosynthesis**



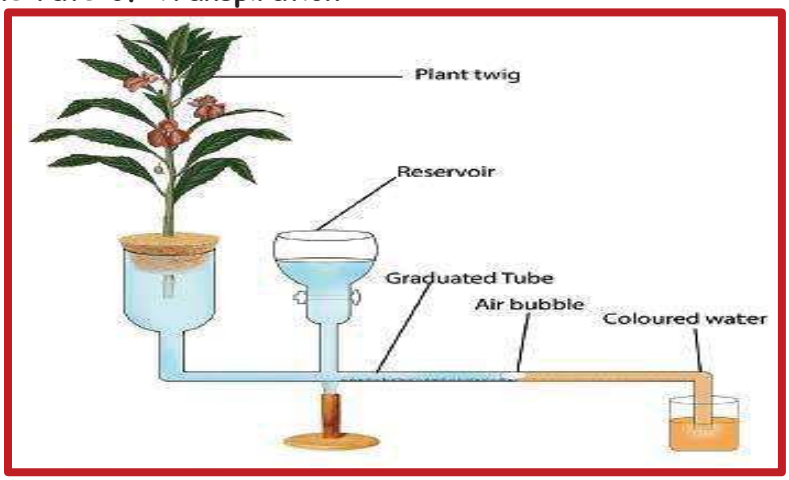
**3.Study of Imbibition by Raisins**

**Aim. To demonstrate mechanism of Imbibition**



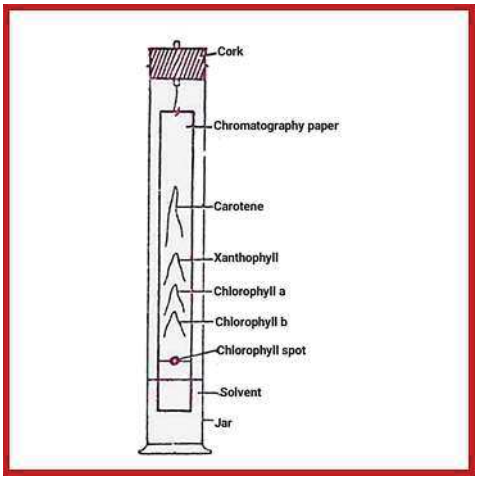

**4.Ganong's Potometer Experiment**

**Aim. To measure the rate of Transpiration**




**5.Paper Chromatography Experiment**

**Aim .. To separate photosynthetic pigments from leaf**




## V.Construct the floral formula of given Flower 'E'

(Single flower and L.S of flower should be mounted on a dissection microscope) belonging to Fabaceae and Solanaceae and should be provided for each batch to construct the floral formula.

**1 FABACEAE** **(1½ Score)**

**Flowers of Crotalaria/Glyricida/..... may be given**



$$\% \, \bar{\varphi} \, K_{(5)} \, C_{1+2+(2)} \, A_{(9)+1} \, \underline{G}_{1}$$

**2 SOLANACEAE**

**Flowers of Chilly/Tomato/Brinjal/…….may be given**



$$\oplus \, \bar{\varphi} \, K_{(5)} \overset{\frown}{C_{(5)}} A_{5} \underline{G}_{(2)} \cdot$$

VI.Write the ecological interaction of the specimen F

( identification – 1 description- 1 ) (score 2)

Any one interaction from Mutualism/Parasitism/Commensalism may be given.

(Note: Any two interactions shall be provided)

**a).LICHEN-MUTUALISM**

In this association both species are benefited.

Algal component is phycobiont and fungal component is mycobiont

**b).CUSCUTA-PARASITISM**

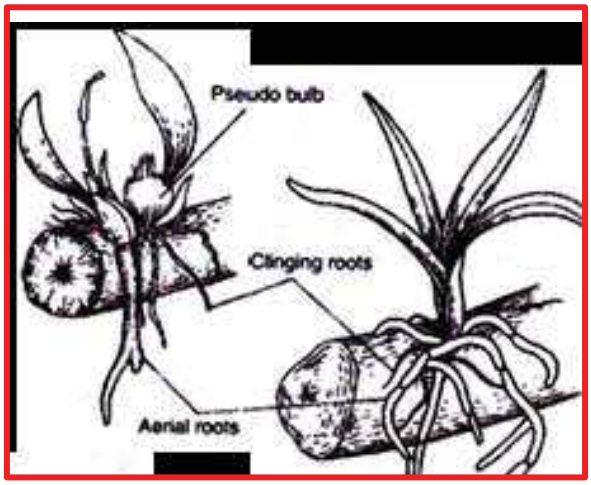
1.Interaction between host and parasite.

2.Parasite is benefited and host is harmed

**C).EPIPHYTE-COMMENSALISM**

Epiphyte(Orchid) growing on other plants but do not absorb food from it.

In this interaction orchid is beneficial while host is not harmed.



**VII. Identify the given microscopic slide G of C.S. of anther**

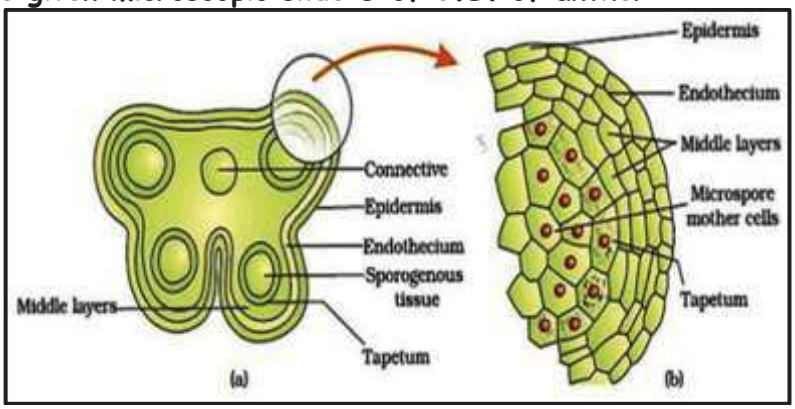



**Diagram-1(diagramatic sketch of C.S of four lobed anther /cellular diagram of a single lobe) labelling-1 (any two parts). (2 Score)**

**VIII. 8. Ask informally simple questions related to the physiological experiments done- (1 Score)**

**IX. Practical diary- ( 3.Score)**