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**SARDAR PATEL UNIVERSITY**
**M.Sc. (H.SC) III SEMESTER FBT**
**EXTERNAL THEORY EXAMINATION**
**FRIDAY, DATE: 07/12/12**
**TIME: 2.30PM TO 5.30 PM**
**PH03EFBT03: NUTRITIONAL BIOTECHNOLOGY**

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**Total Marks: 70**

**I. Choose the correct answer from the following** **(8)**

1. Linseed oil is rich in
   i. Oleic acid
   ii. Stearic acid
   iii. Alpha linolenic acid
   iv. None of the above
2. Green tea contains
   i. epicatechin
   ii. quercitin
   iii. epicatechin gallate
   iv. all of the above
3. Fatty acid synthesis occurs in _____ plant organelle
   i. cytosol
   ii. plastid
   iii. mitochondria
   iv. vacuole
4. Hormone pair which is required for callus differentiation
   i. Auxin and cytokinin
   ii. Auxin and ethylene
   iii. Auxin and abscsic acid
   iv. Cytokine and gibberellins
5. Callus is
   i. A tissue that form an embryo
   ii. An insoluble carbohydrate
   iii. Tissue that grows to form an embriod
   iv. Unorganized growing mass of cells maintained in culture

(PTO)

6. The use of biotechnology with animals
   i. biopharmaceutical
   ii. transgenic
   iii. animal biotech
   iv. molecular biology
7. Which vector is mostly used in crop improvement
   i. Plasmid
   ii. Cosmid
   iii. Phasmid
   iv. Agrobacterium
8. Somaclonal variations are caused by
   i. Caused by mutagens
   ii. Caused by gamma rays
   iii. Produced during tissue culture
   iv. Induced during sexual embryogeny

**II. Answer the following briefly (any seven)** **(14)**

1. Bt. Toxin is effective against sucking pest. Justify.
2. What are the health benefits of isoflavons
3. How does genetic engineering approaches protect plant against infections.
4. Define organogenesis.
5. What is a protoplast?
6. Transgenic meat peptides are used to increase iron bioavailability.
7. Justify vitamins are sterilized by filter sterilization method.
8. What is the role of ethylene plant hormone?
9. What are advantages of micro propagation.

**III.** (A) Explain how sucrose synthesis and its translocation take place in plants. **(6)**

(B) What is the yellow color due to in golden rice? What approaches were used to increase β carotene content of this grain? How much β carotene µg/g was achieved?

**OR**

(B) Explain with the help of diagram/s the sequential stages of somatic embryo development. **(6)**

IV. (A)Write a short note on the importance of transgenic plants. **(6)**

(B)Write a note on the approaches carried out for improving milk quality by biotechnology. **(6)**

**OR**

(B)Write a note on the genetic engineering approaches used to improve meat quality.

V. (A)Explain in details the basic steps involved in the production of plants through tissue culture.

(B) Explain in details how *Agrobacterium tumefaciens* help in transformation of plant cells? What are binary vector how do they help in genetic engineering of plants?

**OR**

(B) Write a note on the role of biotechnology involved in production and improvement of Bt. cotton.

VI. (A) Write a note on micro propagation its applications? Mention the advantages and disadvantages of micro propagation over other conventional propagation techniques? **(6)**

(B) Write a note on plant growth promoters. **(6)**

**OR**

(B)Write a note on the different DNA transfer method used in plants.

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