B.Sc. Biotech Part III Examination, 2016

Faculty of Science

(Plant tissue Culture and Biotechnology)

Time: 3 Hours **Maximum Marks: 50**

Note: Question 1 is compulsory, Attempt five questions in all, selecting at least one question from each section.

Q1. (i) Credit of successfully establishment the tissue on artificial culture medium goes to german botanist…….

(ii) Root initiation from callus is called…….

(iii) IAA, a growth substance was discovered by ……..in 1926.

(iv) Single cell culture is ideal system for investigating…….

(v) Haploid embryo from microsporogenous cells of tobacco and Datura were developed by…….

(vi) Temperature of culture chamber is maintained between ……..

(vii) Production of a haploid by the development of an unfertilized egg cell as a result of delayed pollination is……

(viii) What is totipotency?

(ix) Define cloning?

(x) What is somatic embryo?

Section A

Q.2 Describe the different application of cell culture in plants?

Q3. Write short notes on:

a) Autoclave

b) Types of culture media

Section B

Q4**.** Explain somatic embryogenesis in detail?

Q5. Write short note on:

a). somaclonal variation

b). Single cell culture

Section C

Q6. What is haploid? Explain its production in detail?

Q7. Write short notes on:

a). application of micropropogation in agriculture

b). cell cloning

Section D

Q8. Describe the available method for isolation and purification of protoplast?

Q9. Write an essay on production of disease free plant by tissue culture method?

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Q1. (i) Enzyme…….is used for degradation of cell wall to get protiplast.

(ii) Differentiation of roots, shoots and leaves from callus is called……

(iii) NaNO3 and polyethylene glycol are …… agents.

(iv) Single cell culture is ideal system for investigating……

(v) …….is an alternative to organogenesis for regeneration of whole plants.

(vi) Cocking (1960) separated ……. with the help of enzyme.

(vii) The principal components of most plant tissue culture media are……

(viii) The potential of a cell to grow & develop a multicellular/multiorganed higher organism is called…….

(ix) For most of the culture media pH …… before sterilization is considered optimal.

(x) What is cell cloning?

Section A

Q2. Write short notes on:

a). Surface sterilization

b). Historical background of plant tissue culture

Q3. Write a detailed account on nutritional requirement of cell in vitro?

Section B

Q4. Write short note on:

a). Somaclonal propogation

b). Organogenesis

Q5. What is embryogenesis? Write an essay on technique used for somatic embryogenesis?

Section C

Q6. Write an essay on micropropogation?

Q7. Write short notes on:

a). Application of micropropogation in horticulture

b). Application of Haploid

Section D

Q8. Write a detailed account on somatic hybridization?

Q9. Write short notes on:

a). gene expression in somatic hybrid

b). fusion of protoplast