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No. Of Printed Pages: 2

[A-86]

SARDAR PATEL UNIVERSITY
B.Sc. VIth SEMESTER (BOTANY) EXAMINATION
Wednesday, 6th April, 2016
Time: 2.30p.m. to 5.30p.m.
Paper: US06CBOT05 - Plant Biotechnology

Note: Draw neat and labeled diagram wherever necessary. **Total mark: 70**

Q-1 Multiple Choice Questions. **(10)**

(i)A low auxin-cytokinin ratio
(a)Stimulates initiation of shoot buds (b) suppresses root initiation
(c)Both a and b (d) suppresses initiation of shoot buds

(ii)The first embryo culture was carried out by:
(a) R.J.Gautheret (b) Hanning (c) J.P.Nitsch (d) Carlson

(iii)Which one of the following is a micronutrient essential for plant growth?
(a)Potassium (b) Magnesium (c)Sulphur (d) Molybdenum

(iv) Restriction Endonuclease enzyme was first isolated from:
(a)Bacteria (b) Virus (c) E.coli K (d)Agrobacterium

(v) The procedure of blotting of sample is done:
(a)after gel electrophoresis (b)before gel electrophoresis
(c)after denaturation of DNA fragment (d)after hybridization

(vi)Which one of the following cloning vector can live a dual life?
(a)Cosmid (b) Plasmid (c) YAC vectors (d)hpt iv

(vii) Biolumniscence is caused by the enzyme:
(a)Nopaline synthase (b) Octopine synthase (c)Agropine synthase (d) Luciferase

(viii)`bar'gene is isolated and sequenced from:
(a)*Agrobacterium tumefaciens* (b)*E.coli*
(c)*Salmonella typhimurium* (d)*Streptomyces hygroscopicus*

(ix)The herbicide atrazine is detoxified by:
(a) GST (b) PAT (c)ALS (d)EPSPS

(x)The world's first clinically tested plantibody is:
(a)Caro Rx (b) Neo Rx (c) ScFvT84.66 (d) PIPP

Q-2 Answer in brief any ten of the following (20)

(i) What is an explant? Which sterilizing agents are used for it's sterilization?
(ii) Write the difference between primary and secondary somatic embryo.
(iii) What is micropropagation?
(iv) Explain in brief: Northern blotting.
(iv) Define` Genome Map'.
(v) What are the differences between type II and type III Restriction endonucleases?
(vi) What are the mechanical shearing methods used for cutting DNA molecule to prepare DNA fragments?
(vii) What are luciferase genes? What are their functions?
(ix) Explain `copy number'in brief.
(x) What is the role of transgenics in degradation of pollutants?
(xi) What are mycoherbicides? Give examples.
(xii) What are edible vaccines? What are their advantages?

Q-3 (a) Write the importance of somatic embryogenesis. (04)
(b) Write a note on nutrients in Plant Tissue Culture. (06)

OR

Q-3 Write the applications of (i) Plant Tissue Culture (06)
(ii) micropropagation. (04)

Q-4 Write notes on (i) RFLP and (ii) Gel electrophoresis. (10)

OR

Q-4 Write in detail about Polymerase Chain Reaction (10)

Q-5 Give an illustrated account on Gene Construct. (10)

OR

Q-5 Write notes on :(a) Reporter genes. (06)
(b) Electroporation (04)

Q-6Write notes on:(a) Herbicide resistance (04)
(b) Engineering plants to improve oil and fat quality. (06)

OR

Q-6(a) Write an essay on Microbial Ore Leaching. (07)
(b) Write the applications of microbial enzymes. (03)

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