T.Y BSc Biotech
Sem VI Molecular Biology & Bioinformatics
Exam April 2018

Q.P. Code :32307

[Time: Two and half Hours] [Marks:75]

Please check whether you have got the right question paper.

N.B: Attempt all questions
All questions carry equal marks
Draw neat labeled diagrams wherever necessary

Q.1 **a.** Give one example of the following **(any three)** **03**

i. Restriction enzyme used for detection of SCA
ii. Method used for DNA sequencing
iii. Virus used for preparation of vector vaccines
iv. Restriction enzyme used for preparation of attenuated Cholera vaccine
v. Thermostable enzyme used in PCR
vi. Cells used for HSV vaccine preparation

b. Answer the following **(any two)** **12**

i. What is a subunit vaccine? State its advantages and disadvantages.
ii. Give an account of Di-deoxy sequencing
iii. Discuss the role of VNTRs in solving paternity case.
iv. Give an account of peptide vaccines with suitable example.

Q.2 a. Do as directed **(any three):** **03**

i) Mention the voltage time requirements for 'high voltage – short pulse' approach of electroporation
ii) State the significance of Cry protein:
iii) Give significance of : Golden rice
iv) Give significance of triparental mating while using Ti plasmid vector.
v) What are opines?
vi) Define: Protoplast

b. Attempt the following **(any two)** **12**

i) What are transgenic plants? Explain in details any one transgenic plant.
ii) Discuss: Liposomes and explain their role in plant transgenesis.
iii) Diagrammatically describe : Binary Ti plasmid vector
iv) Define edible vaccines. Explain with suitable example.

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Q.3 a. What do you understand by the following terms **(any three)**: 03

i) Embryonic stem cells
ii) Transgenic founder
iii) Karyogamy
iv) Knock out mouse
v) Biosensor
vi) Quiescent state

b. Elaborate the following **(any two)**: 12

i) Establishment of transgenic mouse by DNA microinjection
ii) Positive negative selection system
iii) Cre-*loxP* recombination system for activating a gene
iv) Application of transgenic fish

Q.4 **a.** Explain the following terms **(any Three)** 03

i. EMBL
ii. Internet explorer
iii. Book mark
iv. FTP
v. Internet
vi. HTML

b. Answer the following **(any two)**: 12

i) Define Bioinformatics. Give a detailed account of its scope and applications
ii) Describe the heuristic tools used in sequence similarity searching.
iii) Give an account of protein databases.
iv) Discuss the role of world wide web in bioinformatics

Q. 5 Write short note on **(any three)**: 15

i) Any one method for producing transgenic livestock
ii) Data retrieval tool
iii) RT-PCR
iv) DNA vaccines
v) Electroporation
vi) Microprojectile Bombardment technique

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