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SUBJECT CODE NO:- L-2010
FACULTY OF SCIENCE
B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2018
Elective Paper Botany Paper- XVI
(D) BIOTECHNOLOGY

[Max.Marks:50]

Time: 1:30 Hours]

Please check whether you have got the right question paper.

B

- i. Attempt all Questions.
- ii. Draw neat and well labeled diagrams.

Q.1

What are transgenic plants? Explain their role in agriculture.

20

OR

Describe in detail replication of DNA and add a note on DNA sequencing.

20

Q.2

Describe the stages of embryogenesis and organogenesis.

20

OR

Write short note on (any four)

20

- a) Scope of Biotechnology.
- b) Distinguish between DNA polymerase-I and DNA Polymerase-II.
- c) Nucleotide.
- d) Present status and scope of tissue culture.
- e) Reporter genes.
- f) Anther culture.

Q.3

Multiple Choice Questions.

10

1. The oldest technique in biotechnology is.
 - a) Gene cloning. b) Fermentation. c) Gene transfer. d) Bacterial transformation.
2. DNA finger printing techniques was first developed by
 - a) Jeffreys, Wilson and Thien. b) Boysen and Jensen.
 - c) Scheilden and schwan. d) Edward and Steptoe.
3. In southern blotting is separated by gel electrophoresis.
 - a) DNA. b) m-RNA. c) t-RNA. d) Protein.
4. If DNA strand has 10 spirals, the length of the DNA strand will be
 - a) $34A^{\circ}$. b) $340A^{\circ}$. c) $640A^{\circ}$. d) $64A^{\circ}$.
5. Genomics is
 - a) Study of chromosomes. b) Study of Protein.
 - c) Study of genes and genome d) study of Body cell
6. Many Copies of DNA molecule in a test tube are produced by
 - a) Polymerase chain Reaction (PCR). b) Molecular chain Reaction (MCR).
 - c) Ephimeral chain Reaction (ECR). d) All of these.
7. The technique of obtaining large number of plantlets by tissue culture method is called...
 - a) Micropropagation. b) Macropropogation. c) Plant let culture. d) Organ culture.
8. The enzyme used for cutting DNA segment in genetic engineering is
 - a) ATPase. b) Ligase. c) DNA Polymerase. d) Restriction endonuclease.
9. A cloning vector must have
 - a) Enzyme necessary for replication. b) Marker DNA.
 - c) Origin of replication. d) None of the above.
10. The enzyme used in PCR technique is
 - a) Bam I. b) Tqq Polymerase. c) Hind III. d) ECO RI.

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SUBJECT CODE NO:- B-2024
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2019
Botany Paper- XVI / (D) Bio-Technology

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

N.B

- 1) Attempt all questions
- 2) Draw neat and well labeled diagrams.

- Q 1 What is genomic? Elaborate the concept and explain the scope of genomics. 20
 OR 20
- Describe in detail structure of DNA 20
- Q 2 What is DNA finger printing? Explain the procedure, advantages application and limitation of finger printing. 20
 OR 20

Write short note (any four)

- a) Application of tissue culture
- b) Scope of biotechnology
- c) Transgenic plants
- d) Application of PCR technology
- e) Vectors
- f) Marker genes

- Q.3 Multiple choice questions 10
- 1) Out of the following enzymes which one is used to join segments of DNA during genetic engineering?
 a) Lipase b) ligase c) gyrase d) helicase
 - 2) DNA finger printing refers to
 a) Techniques used for molecular analysis of different specimens of DNA
 b) Techniques used for identification of fingerprints of individuals
 c) Molecular analysis of profiles of DNA samples
 d) Analysis of DNA sample
 - 3) The genome map was produced under human genome project in
 a) 1992 b) 1994 c) 1996 d) 2000
 - 4) The replication of DNA is brought out by an enzyme known as
 a) Oxidase b) reductase c) kinase d) polymerase
 - 5) Restriction endonuclease is use in
 a) Genetic engineering b) Tissue culture
 c) cell fractionation d) Regeneration of tissue

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SUBJECT CODE NO:- B-2045
FACULTY OF SCIENCE & TECHNOLOGY
B.Sc. T. Y. (Sem-V)
Examination November/December- 2022
Elective Paper
Botany Paper- XVI
Bio-Technology

[Time: 1:30 Hours]

[Max.Marks:50]

“Please check whether you have got the right question paper.”

- N.B.
- i) Attempt all questions.
 - ii) Draw neat and well labelled diagram wherever necessary.

Q.1 Describe structure and replication of DNA. 20

OR

Explain southern and northern blotting technique in recombinant DNA technology.

Q.2 Explain Biotechnology in India and add a note on scope & multidisciplinary nature of Biotechnology. 20

OR

Write Short notes on (any four)

- a) Vectors
- b) Gene mapping
- c) Isolation of protoplast
- d) Human genome project
- e) DBT
- f) Application of tissue culture

Q.3 Multiple choice questions. 10

- 1) Pentose sugar in nucleic acid was discovered by _____.
- a) Jacob
 - b) Harison
 - c) Levene
 - d) Mendel

- 2) DNA replication in prokaryotes is _____.
 - a) Discontinuous
 - b) Continuous
 - c) Semicontinuous
 - d) Conservative
- 3) A good vector has at least _____ marker gene.
 - a) Two
 - b) Three
 - c) Four
 - d) Five
- 4) Polymerase chain reaction is concerned with _____.
 - a) DNA replication
 - b) DNA repairing
 - c) DNA proof reading
 - d) DNA amplification
- 5) Which one of the following is known as opal _____.
 - a) UGA
 - b) GUG
 - c) UAA
 - d) UAG
- 6) Z-DNA is _____ bases per turn.
 - a) 10
 - b) 12
 - c) 14
 - d) 20
- 7) In tissue culture, which of the following shows _____ totipotency.
 - a) Sieve tube
 - b) Collenchyma
 - c) Meristem
 - d) Xylem vessels
- 8) Genomics is _____.
 - a) Study of chromosome
 - b) Study of protein
 - c) Study of gene & genome
 - d) Study of body cell

9) Electrophoresis is used to match gene with its function _____.

- a) Clone genes
- b) Cut DNA into fragment
- c) Separate fragments of DNA
- d) None of these

10) The first mammal clone 'Dolly' was created by _____.

- a) Ian Wilmut
- b) Thomus
- c) Morgan
- d) Hofmeister

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SUBJECT CODE NO: - 2045
FACULTY OF SCIENCE & TECHNOLOGY
B.Sc. T.Y Sem-V
Examination March/April-2022 (To be held in June/July-2022)
Elective Paper
Botany Paper- XVI / Bio-Technology

[Time: 1:53 Hours]

[Max. Marks:50]

Please check whether you have got the right question paper.

- N. B
- i. Attempt all questions.
 - ii. Draw neat and well labeled diagram wherever necessary.

Q.1 Describe in detail recombinant DNA technology and add a note on genomics. 20

OR

What is transgenic plant? Explain vector for gene deliveries and reporter genes.

Q.2 Describe principle of tissue culture and add a note on organogenesis and embryogenesis 20

OR

Write short notes on (any four)

- a) Renaturation of DNA
- b) Marker gene
- c) Totipotency
- d) DST
- e) Plant genome project
- f) DNA finger printing

Q.3 Multiple choice questions. 10

1. Which of following forms of chemical scissors -----

- | | |
|-------------|-----------------|
| a) Eco RI | b) Bam I |
| c) Hind III | d) All of these |

2. In replication, parent strand function as -----

- | | |
|-------------|---------------|
| a) Origin | b) Templates |
| c) Incision | d) Chromosome |

3. Plasmid are called -----
 - a) Plastosome
 - b) Chromosome
 - c) Hyposome
 - d) Episomes
4. Natural genetic engineer is -----
 - a) E. Coil
 - b) Bacillus
 - c) Pseudomonas
 - d) Agrobacterium
5. During 'gene cloning' which is called as gene taxi
 - a) Protozoa
 - b) Bacterium
 - c) Plasmid
 - d) Vaccine
6. First genetic modified plant was -----
 - a) Tobacco
 - b) Tomato
 - c) Cotton
 - d) Rice
7. Largest bacterial plasmid has ----- kilobases.
 - a) 5
 - b) 500
 - c) 5000
 - d) 1000
8. The core promoter has a special DNA sequence called ----- box.
 - a) BATA Box (BATA)
 - b) BETA Box
 - c) TATA Box
 - d) VATA Box
9. A cytoplasmic hybrid produced by fusion of proto plast and cytoplasm is called
 - a) Transgenic plant
 - b) Cybrid
 - c) Somatic hybrid
 - d) Vybrid
10. Southern blot technique is related to -----
 - a) ELISA test
 - b) Sonography
 - c) Widal test
 - d) DNA profiling

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SUBJECT CODE NO: - Y-2045
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. T.Y (Sem.V)
Examination March / April - 2023
Bio-Technology

[Time: 1:30 Hours]**[Max. Marks: 50]**

Please check whether you have got the right question paper.

N. B

- 1) Attempt all questions.
- 2) Draw neat and well-labelled diagram necessary.

Q1 Explain in detail marker and reporter genes 20

OR

Explain role of Biotechnology in Agriculture crop

Q2 Describe the tissue culture technique in plants. 20

OR

Write short notes on (any four)

- a) DNA finger printing
- b) Genomics
- c) protoplast culture
- d) Human genome project
- e) organogenesis
- f) PCR

Q3 Multiple choice questions 10

- 1) Z DNA is _____ handed.
 - a) Right-handed
 - b) left-handed
 - c) parallel
 - d) d) helical
- 2) distance between two nucleotide is-
 - a) 34 A°
 - b) 35 A°
 - c) 36 A°
 - d) 3.4 A°
- 3) C DNA has been farm of _____.
 - a) mRNA template
 - b) tRNA template
 - c) DNA template
 - d) None of these.

- 4) which of the following can be used as vector in genetic engineering
 - a) T plasmid of Agrobacterium
 - b) plasmid
 - c) viruses
 - d) All of these
- 5) DNA finger prints are actually_____.
 - a) C DNA
 - b) genes
 - c) RNA
 - d) Restriction fragments
- 6) Cloning is meant_____.
 - a) To replace original one
 - b) To produce hGH gene in E.coli
 - c) To preserve the genotype of an organism
 - d) All of these.
- 7) First protoplast fusion was done by_____.
 - a) Korenberg & Khorana
 - b) Jacob & monad
 - c) Harris & Watkins
 - d) Watson & crick.
- 8) Introduction of foreign genes for improving genotype is called_____.
 - a) Biotechnology
 - b) Vernalisation
 - c) Tissue culture
 - d) Genetic engineering.
- 9) In the anther culture, androgenic haploid plants are obtained from_____.
 - a) Connective tissue
 - b) Anther Wall
 - c) Tapetum
 - d) microspores
- 10) one of the most useful method for identifying a specific gene is the_____.
 - a) southern blot
 - b) Western blot
 - c) Northern blot
 - d) None of these.