

SHORT ANSWER QUESTIONS

1. Monohybrid cross
2. Dihybrid cross
3. Test cross
4. Crossing over
5. Complete Linkage
6. Incomplete linkage

7. RNA as genetic material
8. Primary structure of DNA
9. Secondary structure of DNA
10. DNA structure
11. Transformation
12. Griffith's experiment
13. Hershey and Chase experiment
14. Chargaff's rule
15. DNA replication
16. Replication fork
17. Plasmids
18. Transposons
19. Insertion sequences
20. Composite transposons
21. Retrotransposons

ESSAY ANSWER QUESTIONS

1. Explain Mendel's laws of Heredity.
2. Write an essay on crossing over.
3. Define Linkage. Explain the significance and types of Linkage.
4. Explain what are the different experiments that support DNA as genetic material.
5. How Scientists have proved RNA as genetic material.
6. Explain DNA structure in detail.
7. What is plasmid (extra chromosomal genetic element)? Explain different types of plasmids.
8. What are jumping genes? Give a brief description of different types of them and mechanism of transfer.
9. Write an essay on DNA replication.
10. Explain the mechanism of rolling circle replication.

SHORT ANSWER QUESTIONS

1. Characters of Mutations
2. Classification of mutations
3. Spontaneous mutations
4. Induced Mutations
5. Frame shift mutations
6. Deletion mutations
7. Duplication mutations
8. Inversion mutations
9. Insertion mutations
10. Replica plate technique
11. Ames Test
12. Physical Mutagens
13. Chemical Mutagens
14. UV Radiation as mutagen
15. Base analogues
16. Photoreactivation repair
17. Nucleotide Excision Repair
18. Base Excision Repair
19. Mismatch Repair
20. Recombination Repair or Retrieval System
21. SOS response
22. Conjugation
23. Hfr X F⁻ Conjugation
24. Transduction
25. Generalized Transduction
26. Specialized Transduction
27. Transformation
28. Horizontal Transmission of genes

ESSAY ANSWER QUESTIONS

1. Define Mutation. Explain different types of mutations.
2. Write an essay on detection and isolation of mutants.
3. What are mutagens? Explain how physical mutagens affect DNA.
4. Discuss about chemical mutagens and their mode of action.
5. Explain different types of DNA repair mechanisms.
6. Explain the mechanism where transfer of genetic material occurs through a tube (Conjugation).
7. Discuss the method of gene transfer where cells take up DNA from its surroundings (Transformation).
8. Write about gene transfer mechanism that occurs through bacteriophages (Transduction).

SHORT ANSWER QUESTIONS

1. Concept of gene
2. Recon
3. Cistron
4. Muton
5. One gene-one enzyme hypothesis
6. One gene-one polypeptide hypothesis

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7. mRNA
 8. rRNA
 9. tRNA
 10. Transcription
 11. Rho-dependent termination
 12. Genetic code
 13. Wobble hypothesis
 14. Ribosome
 15. Translation
 16. Structural genes
 17. Constitutive genes
 18. Regulatory genes
 19. Operon concept
 20. Lac operon

ESSAY ANSWER QUESTIONS

1. Write about concept of gene.
2. Explain different types of RNAs studied by you.
3. Give an outline of transcription in prokaryotes
4. Explain genetic code in detail.
5. Describe Translation mechanism with neat labeled diagrams.
6. What is operon? Explain operation of Lac operon.

SHORT ANSWER QUESTIONS

1. Role of enzymes in molecular cloning
2. Restriction endonucleases
3. DNA ligases
4. DNA polymerase
5. Cloning vector
6. Expression vector
7. Bacteriophage
8. Plasmids as vectors
9. Cosmid
10. Phagemid
11. BAC
12. YAC
13. HAC
14. PCR
15. Gene library
16. cDNA library
17. Genomic library
18. Principle of gene cloning/ genetic engineering
19. Applications of rDNA technology in agriculture
20. Applications of rDNA technology in medicine
21. Applications of rDNA technology in industry

ESSAY TYPE QUESTIONS

1. Define genetic engineering and describe the enzymes involved in the process.
2. Write a detailed account on cloning vectors.
3. Give an outline of gene cloning method.
4. What are genomic and cDNA libraries? Discuss the strategies for construction of cDNA libraries.
5. Write in detail about the choice of vectors for constructing genomic libraries.
6. Explain the construction of genomic libraries.
7. Give an account on industrial, agriculture and medical applications of genetic engineering / rDNA technologies.
8. Write an essay on applications of genetic engineering.