

M.Sc Sem.-2 Examination

P - 407

Bioinformatics

June 2022

Time : 2-00 Hours]

[Max. Marks : 50

Section-I -Attempt any three from this section.

[42]

- Q 1(a) Explain in brief about the Dihybrid cross experiment carried out by Mendel with an example (7)
- (b) Explain the phenomena of Incomplete Dominance with an example. (7)
- Q 2 (a) Describe the phenomena of epistasis and crossing over. (7)
- (b) Explain the differences between monohybrid and dihybrid cross with an example. (7)
- Q 3: (a) Give an account on negative control of *lac* operon with diagram. (7)
- (b) Discuss in detail about attenuation of *trp* operon. (7)
- Q 4 (a) Describe detail experiments which prove that DNA replication is semi conservative and showing bidirectional growth of both strands from one origin. (7)
- (b) Write about positive control of *lac* operon and negative repressible control of *trp* operon. (7)
- Q 5 (a) What are Restriction Endonucleases? Write down its classification in detail and importance in Recombinant DNA Technology. (7)
- (b) What is Recombinant DNA Technology (RDT)? Write down major component used in RDT and application of RDT in diagnosis, genetics and therapeutics areas. (7)
- Q 6 (a) What is vector? Write down characteristics, importance & features of cloning vectors. (7)
- (b) What are Plasmids? Properties of Plasmids, Structure of Plasmids, Transfer of Plasmid, classification based on functions of plasmids, functions and applications of Plasmids. (7)
- Q 7 (a) Which are the different cloning vectors used in recombinant DNA technology? Write down advantages and disadvantages of each cloning vector. (7)
- (b) What is DNA barcoding? Write down brief process of DNA barcoding and its applications in different areas. (7)
- Q 8 (A) Write a brief note on Bioethics and Biosafety (7)
- (B) What is IPR? Give brief note on it. (7)

P.T.O

Section II- Answer the following questions**[8]**

1. If the genotype of an individual is unknown to a researcher, then a _____ is performed primarily.
 - A. Monohybrid cross
 - B. Dihybrid cross
 - C. Test cross
 - D. F1 cross
2. _____ holds the information for a particular biological trait.
 - A. Genome
 - B. Gene
 - C. Intron
 - D. Nucleoid
3. Differentiate between polycistronic mRNA and monocistronic mRNA.
4. Define Operon.
5. RNA contains Uridine, it is a
 - A. pyrimidine
 - B. purine
 - C. nucleotide
 - D. nucleoside
6. Anticodon is present in
 - A. DNA
 - B. tRNA
 - C. rRNA
 - D. mRNA
7. Design does not include
 - A. features of shape
 - B. composition of lines or colours
 - C. mode or principle of construction
 - D. None of the above
8. Which of the following is the Symbol of Maharaja of Air India is
 - A. Copyright
 - B. Patent
 - C. Trademark
 - D. All of the above