

M.Sc Semester-2 Examination

408

Human Genetics

Time : 2-30 Hours]

April-2024

[Max. Marks : 70

Q-I	1	Name the enzymes used in DNA technology and discuss any two .	(14)
	2	Write a note on: Plasmids and Phages.	
	1	Write a note on construction of genomic library.	
	2	What are GMOs? Explain in detail.	
Q-II	1	Draw structure for the association of CRISPR with Cas9. Write a note on "Most used Cas enzymes".	(14)
	2	Write a note on Screening of bacterial colonies using oligonucleotide probe.	
		OR	
	1	Write a note on "Yeast two hybrid assay".	
	2	Write a note on "Genome editing by CRISPR/Cas".	
Q-III	1	Which technique was invented by Kary Mullis? Write the steps involved in it and draw the diagram.	(14)
	2	DNA fingerprinting has applications in various fields of science and has commercial applications. Prove it using proper examples.	
		OR	
	1	Explain the process of DNA foot-printing and draw labelled diagram for it.	
	2	Describe in detail: The real-time PCR probe-based detection system.	
Q-IV	1	Describe DNA sequencing by synthesis using M13 vector.	(14)
	2	Write a brief note explaining the steps involved in the Western blotting technique.	
		OR	
	1	Give information on the Maxam-Gilbert method for DNA sequencing.	
	2	Explain: The steps involved in the RNA blotting process.	
Q-V		Answer any SEVEN out of TWELVE.	(14)
	1	Explain one application of recombinant DNA technology.	02
	2	What are cosmids?	02
	3	What are artificial chromosomes?	02
	4	Explain words: Entry clone, Donor vector.	02
	5	Write LR reaction.	02
	6	What are competent cells? Give one example?	02
	7	What are the components of PCR master mix?	02
	8	Name the cleavage agents that were utilized in the DNA foot-printing process.	02
	9	Make a labelled diagram of the magnetic bead RNA extraction process.	02
	10	Name two variations between Western blotting and the dot blot method.	02
	11	Define RFLP and give the full form of it.	02
	12	During the Southern blotting procedure, which treatment is helpful to covalently bond blotted DNA with the nitrocellulose and nylon membrane?	02

X