

Enrollment No. _____



NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Science
Program/s: M.Sc. Life Science
Year: 2nd
Semester: III
Examination: End Semester Examination
Examination year: December - 2022

Course Code: LS212 **Course Name:** Animal Biotechnology
Date: 2/12/2022
Time: 11:30 am to 1:30 pm

Total Marks: 40
Total Pages: 2

Instructions:

- Draw labelled diagrams where ever necessary
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	Objective Type Questions (11 x 1 mark = 11 marks)			
	1. First transgenic primate is _____.			
	a. UTDi b. GENi c. CLONi d. ANDi			
	2. Oocytes are arrested at _____ phase before fertilization			
	a. Metaphase c. Prophase I			
	b. Metaphase II d. Between Meiosis I & Meiosis II			
	3. Which of the following is not a method for embryo testing?			
	a. Albumin and Percoll gradient c. HY antigen assay			
	b. FISH d. Barr bodies analysis			
	4. Which of the following is not a type of non-invasive method of sex determination of embryos?	11	CO1, CO2, CO3	BT1, BT3, BT4
	a. Immunological assay of HY antigen			
	b. Quantification of X-linked enzyme			
	c. Barr bodies			
	d. Differential growth of male & female embryo			
	5. ICSI stands for _____.			
	6. _____ exonuclease is used in homopolymer tailing.			
	7. _____ molecule is used for in vitro capacitation of sperm.			
	8. Flushed embryos are inserted into uterine horn depending on which ovary shows the presence of _____.			
	9. Non-radioactive probes are safer than radioactive probes. True or False. Justify.			

	<p>10. Restriction enzymes type I cannot be used for genetic engineering purposes. True or False. Justify.</p> <p>11. FSH hormone is used to synchronize the estrous cycles of the donor and recipient cows. True or False. Justify.</p>			
Q.2	<p>Answer in brief (5 x 2 marks = 10 marks)</p> <ol style="list-style-type: none"> Differentiate between linkers and adaptors. Why the estrous cycle needs to be synced between the donor and recipient animals? What is in vitro maturation of oocytes? Define vaccine adjuvant with some examples. What are the challenges of using mammalian system as host for production of recombinant proteins? 	10	CO1, CO2, CO3	BT1, BT3, BT4
Q.3	<p>Answer in detail (Any Three) (3 x 3 marks = 9 marks)</p> <ol style="list-style-type: none"> Explain the stages of vaccine development in brief. Describe any three major enzymes and their functions in reproductive animal biotechnology. What is the physiological function of restriction enzymes in bacteria? Describe the immunological screening method of screening of genomic library. 	9	CO1, CO2, CO3	BT1, BT3, BT4
Q.4	<p>Answer in detail (Any Two) (2 x 5 marks = 10 marks)</p> <ol style="list-style-type: none"> Explain the stages of vaccine development in brief. How are X and Y sperms different from each other? In a typical gene cloning experiment, by mistake a researcher introduced the DNA of interest within ampicillin resistant gene instead of polylinker region. The competent cells were allowed to take up the plasmid and then plated in the media containing ampicillin and subjected to screening. <ol style="list-style-type: none"> What would be the expected outcome of this experiment? (2M) Describe your observations, if there was an additional tetracycline resistant region in the plasmid. (2M) 	10	CO1, CO2, CO3	BT1, BT3, BT4

*****End of Question Paper*****