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**B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2023**

Sixth Semester

**BT18012 – ANIMAL BIOTECHNOLOGY***(Biotechnology)***(Regulation 2018 / Regulation 2018A)****TIME: 3 HOURS****MAX. MARKS: 100**

- CO 1** Explain the concepts of animal cell culture.  
**CO 2** Identify the diagnosis of various animal diseases.  
**CO 3** Apply the knowledge for therapy of animal infections.  
**CO 4** Compare the knowledge about the concepts of micromanipulation technology and transgenic animal technology.  
**CO 5** Interpret the knowledge about the application of field of clinical research.

**PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

	CO	RBT LEVEL
1. List the components of the animal cell culture medium.	1	2
2. Differentiate adherent and suspension cell cultures and their culture requirements.	1	3
3. Illustrate the use of PCR in the diagnosis of animal diseases.	2	3
4. List any 4 examples of monoclonal antibodies that are used in the diagnosis	2	2
5. How the recombinant cytokines are produced?	3	2
6. Give examples of any 4 animal diseases.	3	2
7. Relate micromanipulation technique in the creation of transgenic animals.	4	3
8. Identify the steps involved in artificial insemination.	4	4
9. Compare the production of recombinant protein using cell culture and transgenic animals.	5	4
10. Identify the reason for the usage of stem cells in creating transgenic animals?	5	4

**PART- B (5 x 14 = 70 Marks)**

	Marks	CO	RBT LEVEL
11. (a) (i) Compare chemically defined and serum free media.	(4)	1	4
(ii) Distinguish the types of culture vessels, culture conditions and aseptic techniques used to grow the mammalian cells.	(10)	1	4
<b>(OR)</b>			
(b) (i) Interpret the steps involved in the somatic cell fusion technique.	(4)	1	4

	(ii) Elaborate about the significance and applications of immobilized cell cultures.	(10)	1	4
12. (a)	Describe about a bacterial and viral disease encountered by the animals and their treatment strategies.	(14)	2	2
	<b>(OR)</b>			
(b)	Examine the steps involved in the northern blotting and southern blotting to identify the presence of target gene and its expression.	(14)	2	2
13. (a)	Identify different types of cytokines secreted from immune cells and describe about them.	(14)	3	3
	<b>(OR)</b>			
(b) (i)	Classify the different types of vaccines and outline their uses in preventing infections in animals.	(8)	3	3
(ii)	Describe at least two case studies of gene therapy where the animals are treated for their genetic disorder.	(6)	3	3
14. (a) (i)	Illustrate the working principle of micromanipulator which is used in conjunction with a microscope in microinjection technique.	(6)	4	3
(ii)	Discuss in detail about the technique used to enrich the x and y bearing spermatozoa cells from the animal semen samples.	(8)	4	3
	<b>(OR)</b>			
(b) (i)	Outline the steps involved in artificial insemination and germ cell manipulation.	(8)	4	3
(ii)	Describe the process of invitro fertilization used in creating transgenic animals.	(6)	4	3
15. (a)	Describe the isolation procedure of embryonic stem cells and the role of embryonic stem cells in the development of transgenic animals.	(14)	5	3
	<b>(OR)</b>			
(b)	Elaborate in detail about the steps involved in the production of any 4 recombinant products using the transgenic animal and its application.	(14)	5	3

**PART- C (1 x 10 = 10 Marks)**

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Elucidate the importance of continuous flow cultures, organ cultures and the high value products produced from the mammalian cell culture.	(10)	1	5

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