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**B.Tech. DEGREE EXAMINATION, MAY 2024**  
Sixth Semester

18BTC203J – ANIMAL BIOTECHNOLOGY

(For the candidates admitted from the academic year 2018-2019 to 2021-2022)

**Note:**

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40<sup>th</sup> minute.
- (ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours

Max. Marks: 100

**PART – A (20 × 1 = 20 Marks)**

Answer **ALL** Questions

PART – A (20 × 1 = 20 Marks)		Marks	BL	CO	PO
Answer ALL Questions					
1. Which of the following is not true in case of QTL?		1	2	1	3
(A) QTL can be a single gene or a cluster of genes	(B) Genes involved are subject to pleiotrophic effect				
(C) Traits are controlled by multiple genes which follow mendelian law of segregation	(D) Genes involved are always dominant				
2. Which of the following requires pre-selective amplification?		1	2	1	3
(A) AFLP	(B) RAPD				
(C) RFLP	(D) DNA fingerprinting				
3. Administration of GH leads to		1	3	5	3
(A) Decreased lipid utilization	(B) Increased carbohydrate reserve				
(C) Increased skeletal growth	(D) Decreased amino acid uptake				
4. False statement about probiotics		1	3	5	3
(A) Should be a gram-positive bacteria	(B) Should produce lactic acid				
(C) Should be less tolerant to bile	(D) Should possess high stability at room temperature				
5. Optimal pore size of membrane to filter bacteria and fungi is		1	2	3	3
(A) 0.1 µm	(B) 0.2 µm				
(C) 0.6 µm	(D) 1.0 µm				
6. Which one of the following is not a specific property of primary cell culture?		1	2	3	3
(A) Cells are heterogenous	(B) Cells have infinite life span				
(C) Cells exhibit contact inhibition	(D) Derived from animal				
7. Pregnancy can be diagnosed using		1	2	2	3
(A) EEG	(B) ECG				
(C) Ultrasonography	(D) Ultrasonic vocalizations				

8. Embryo sexing is a method of 1 2 2 3  
 (A) Gonadotrophin release (B)  $\alpha$ -antitrypsin activation of  
 tyrosine hydroxylase  
 (C) Chromosomal distinction (D) Synaptic identification  
 causing sex determination
9. Scrapie disease affects which of the following systems? 1 2 4 3  
 (A) Central nervous system (B) Digestive system  
 (C) Circulatory system (D) Pulmonary system
10. Foot rot in goat is caused by 1 2 4 3  
 (A) *F. gigantea* (B) *F. necrophorum*  
 (C) *M. ovinus* (D) *M. paratuberculosis*
11. Which of the following is a reproductive trait? 1 2 1 3  
 (A) Calving interval (B) Riding  
 (C) Milk yield (D) Udder shape
12. Which of the following genes is linked to hyperkalemic periodic paralysis disease 1 2 1 3  
 (A) MRC2 (B) MEN2B  
 (C) HYPP (D) MOCS1
13. Morphology of HEK293 cells is 1 2 1 3  
 (A) Fibroblast (B) Lymphoblast  
 (C) Epithelial (D) Endothelial
14. Which of the following serum constituents doesn't function as mitogen growth factor? 1 2 3 3  
 (A) Transferrin (B) Endothelial growth factor  
 (C) Steroids (D) Fibroblast growth factor
15. Which of the following is important for alveoli formation in cows? 1 3 5 3  
 (A) Oestrogen (B) Progesterone  
 (C) Prolactin (D) Glucocorticoids
16. Galactopoiesis is defined as 1 3 5 3  
 (A) Ability to secrete the milk (B) Stimulation of mammary glands  
 (C) Development of mammary glands (D) Maintenance of milk production glands
17. Bovine Viral Diarrhea (BVD) type 2 can be prevented by 1 2 4 3  
 (A) Triangle 5 (B) Bovilis BTV8  
 (C) Comirnaty (D) Vaxzevria
18. Which of the following is an inactivated bacterial vaccine? 1 2 4 3  
 (A) Asymptol (B) Triangle 5  
 (C) Bovilis BTV8 (D) Comirnaty

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|---|---|---|---|---|
| 19. Which of the following procedure is appropriate for the usage of transgenic models in development of drugs? | 1 | 2 | 2 | 3 |
| (A) Amplification   |   |   |   |   |
| (B) Identification  |   |   |   |   |
| (C) Validation  |   |   |   |   |
| (D) Safety testing  |   |   |   |   |
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- |  |   |   |   |   |
|--|---|---|---|---|
| 20. Which of the following methods are used in generation of transgenic animals? | 1 | 2 | 2 | 3 |
| (A) Mitochondrial modification   |   |   |   |   |
| (B) Nuclear transfer   |   |   |   |   |
| (C) Synaptic isolation   |   |   |   |   |
| (D) Hormonal suppression   |   |   |   |   |

**PART – B (5 × 4 = 20 Marks)**

Answer **ANY FIVE** Questions

Marks BL CO PO

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|--|---|---|---|---|
| 21. Define what single locus molecular markers are? And describe the most common single locus marker used to identify QTL in cattle. | 4 | 2 | 1 | 3 |
| 22. What is embryo transfer in cattle? Mention the benefits of embryo transfer.  | 4 | 2 | 2 | 3 |
| 23. Mention the applications of TH and ACTH in animal husbandry.   | 4 | 3 | 5 | 3 |
| 24. What is trait? Describe the process of grading-up, with example.   | 4 | 2 | 1 | 3 |
| 25. What are the factors that affect wool quality and describe a method to improve the wool production in sheep?                     | 4 | 3 | 5 | 3 |
| 26. Describe about artificial skin and artificial cartilage.   | 4 | 2 | 3 | 3 |
| 27. Describe in detail about cattle diseases-Anthrax and black leg.  | 4 | 2 | 4 | 3 |

**PART – C (5 × 12 = 60 Marks)**

Answer **ALL** Questions

Marks BL CO PO

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|---|----|---|---|---|
| 28. a. What are chromosomal aberrations? Describe different types of chromosomal abnormalities and elaborate on the genetic diseases affecting the health of horses.    | 12 | 2 | 1 | 3 |
| <b>(OR)</b>   |    |   |   |   |
| b. What is cross breeding? What are the advantages of it in animal husbandry? Describe in detail two different types of breeding that results in maximum hybrid vigour. | 12 | 2 | 1 | 3 |
| 29. a. Explain about the manipulation of rumen microbial digestive system.  | 12 | 3 | 5 | 3 |
| <b>(OR)</b>   |    |   |   |   |
| b. Discuss in detail the mode of action of the probiotics, their uses. Also mention the mutual beneficial effects of bacteria and host substrates.                      | 12 | 3 | 5 | 3 |
| 30. a. Describe in detail about the applications of animal cell culture.  | 12 | 2 | 3 | 3 |

**(OR)**

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|---|----|---|---|---|
| b. Elaborate on tissue plasminogen activator. | 12 | 2 | 3 | 3 |
|---|----|---|---|---|

31. a. What is immunity and what are its types. Define the killed vaccines and elaborate on the types of killed vaccines. 12 2 4 3

**(OR)**

b. Elaborate on the disease caused by *F.gigantica* in goats or sheep, with diagrammatic representation of the life cycle. 12 2 4 3

32. a. Describe in detail the steps involved in *in-vitro* fertilization in cattle. 12 2 2 3

**(OR)**

b. What is cryopreservation of embryo? Explain in detail the procedure for high osmolality vitrification. 12 2 2 3

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