TDC (CBCS) Odd Semester Exam., 2020
held in March, 2021

BIOTECHNOLOGY

(5th Semester)

Course No. : BTCDSE–502T

(Animal Biotechnology)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *fifteen* of the following questions : 1×15=15

1. What is nuclear transfer using microinjection?

2. What are totipotent stem cells?

3. What is a gene gun?

4. Name any one retrovirus which can be used for gene transfer.

5. How is a foreign gene transferred into a plant?

6. What was the gene transfer technique used for creating 'Dolly'?

7. State any three uses of transgenic animals.

8. Name any one product manufactured using transgenic cows.

9. State the biotechnological approach for detecting animal diseases.

10. Name the causative agent of foot-and-mouth disease.

11. Name any one expression vector which is used for transgenesis in animals.

12. State the applications of knock-out mice.

13. Name any technique which is used for the conservation of wild animals.

14. What is embryo transfer technology?

15. State three applications of stem cell technology.

16. What is the technique of artificial insemination used for?

17. What is the purpose of cloning animals?

18. Why is conservation biology important?

19. What is gene therapy?

20. State some ethical issues of gene therapy.

21. Name a vector used in gene therapy.

22. What is personalised medicine?

23. Name the gene whose mutation causes hemophilia.

24. How is a gene delivered for gene therapy?

25. What is human genetic engineering?

26. What are 'designer babies'?

27. How can genetic engineering be beneficial to humans?

28. Can any diseases be treated by genetic engineering? Give examples.

29. Write briefly about genetically engineered human insulin.

30. What is RNA editing?

SECTION—B

Answer any *five* of the following questions : 2×5=10

31. What is electrofusion? Explain how it can be used for gene transfer.

32. Explain briefly how virus-mediated gene transfer works.

33. Discuss the process of transgenesis in insects.

34. What is somatomammotropin?

35. Define an animal clone.

36. Write down the characteristics of pluripotent stem cells.

37. Describe the first therapeutic use of gene transfer.

38. Discuss briefly CAR-T therapy.

39. What is the human genome?

40. Can CRISPR be useful for human genetic engineering? Comment.

SECTION—C

Answer *any* **five** questions

41. Describe the process of somatic cell nuclear transfer (SCNT). 5

42. Discuss the technique employed for microinjection. 5

43. Compare and contrast between the methods of transgenesis in mice. 5

44. Discuss the new developments in biotechnology used for the treatment of trypanosomiasis. 5

45. Describe the technology of artificial insemination in dairy cattle. 5

46. Write a note on the use of stem cells in regenerative medicine. 5

47. Write about the use of vectors in gene therapy. 5

48. Compare and contrast between somatic cell gene therapy and germ line gene therapy. Add a note on the application of gene therapy in medicine. 3+2=5

49. Write a note on molecular engineering and its applications. 5

50. Write about the ethics and likely impact of human genetic engineering. 5

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