

## **MSc ZO-07:ANIMAL BIOTECHNOLOGY**

### Part-A

1. Define biotechnology.
2. What do you know about culture testing?
3. What is a stem cell?
4. What is pluripotency?
5. What is cryopreservation?
6. What is microinjection gene transfer?
7. Name five microorganism that yield vitamin B<sub>12</sub>.
8. What is xenobiotic?
9. Write down the material used in land fills.
10. What is microbial bioremediation? Write its uses.

### Part-B

1. Write down impacts on basic human needs because of biotechnology.
2. Enumerate the aspects of agricultural biotechnology.
3. How you can explain about the future of biotechnology?
4. Note down the kinds of epithelium.
5. Describe the myofibril of striated muscle.
6. List the different types of neurons.
7. Write about the amino acids required for medium concerning cell culture.
8. Antibiotics are used to reduce the frequency of contamination in a medium. Name few of them.
9. Give names of growth factors used in preparation of media.
10. What inorganic elements you will prefer to add in a cell culture media?
11. Write down kinds of growth media.
12. What is role of serum in cell culture?
13. Note the significance of antiproteases in tissue culture.
14. Write in brief about laminar air flow.
15. Name the types of cells we used as stem cells.
16. What is a differential potential of stem cells?
17. Explain the mesodermal differentiated tissue used as stem cells in a foetus.
18. What do you know about stem cells in bone marrow and blood?
19. Give a note on embryonic stem cells.
20. How the number of blood cells in the bone marrow is regulated?
21. List the application of cell culture engineering.
22. What do you understand by presentation and maintenance of animal cell lines?
23. Write a short note on immortalization of cell lines.
24. Note down the types of tumours that develops in a human body.
25. Give some examples of oncogenes in human tumours.
26. Write about oncoproteins.

27. What are recombination vectors?
28. Elucidate various methods of gene transfer via sperm.
29. Explain the elements of aseptic environment for cell culture.
30. Write down the phases of production of disease free plants.
31. What is VAM fungi? Give some examples.
32. Give stages in production of Rhizobium inoculums.
33. Name some of important phosphate biofertilizer (bacteria/fungi).
34. How azolla is being cultivated in mass as a green manure?
35. List method of transgenic integration.
36. Write about types of bioreactors used in fermentation.
37. Name some of the products which are made by microbial fermentation.
38. Make a diagram of a trickling generation for vinegar.
39. Write down names of some amino acids which are made by extraction and fermentation process.
40. Write a short note on green manuring.
41. What is heavy metal tolerance in microbes?
42. Make a pyramid of biomass.
43. Explain role of microbes in environmental cleaning.
44. Explain the consideration for plant composting.
45. Enlist the methods of processing organic waste.
46. Name some contaminants suitable for bioremediation.
47. Give some examples of immobilized soluble enzymes.
48. What are enzyme reactors? Explain their types.
49. Write about fermentation medium.
50. Briefly write about recombination in bacteria.

### Part-C

1. Explain molecular engineering in terms of biotechnology.
2. Give a detail accounts of biotechnology and its scope in modern era.
3. How will you develop a medium for tissue culture?
4. Write down physiochemical properties of a medium.
5. Write about histology of liver.
6. What are disadvantages of the use of serum in cell culture?
7. What are advantages of the use of serum in cell culture?
8. Note down the precautions for using the human serum in culturing techniques.
9. What are the differentiated tissues derived from the embryonic endoderm layer used as stem cells?
10. Explain about haematopoietic stem cells.
11. Explain stem cells in liver and pancreas.
12. Explain about leukemia and lymphoma.
13. Write a short note on inherited blood disorder.

14. How the haemopoetic stem cells rescue in cancer? Name the stages.
15. Explain the clinical use of haemopoetic stem cells.
16. What do you understand plasticity of haemopoetic stem cells?
17. What are basic techniques of primary culture? Give a brief account.
18. How will you prepare a chick embryo cell culture?
19. How will you prepare a mouse embryo cell culture?
20. Explain the determination of cell biology in a culture.
21. How will you maintain the culture? Give important points.
22. What do you understand by quantitation of cell cultured?
23. What are the parameters of selection of cell lines?
24. How the cells in a culture may be transferred from one phase to another phase?
25. How the purification of animal cell products is being done? Briefly describe.
26. Briefly list the application of monoclonal antibodies.
27. What is the difference between benign and malignant tumours?
28. Write down about the molecular aspect of tumour transformations in malignancy.
29. List ten types of tumours of mixed tissues.
30. What are tumours suppressor genes?
31. Explain P53 gene?
32. Briefly describe the 'dolly'.
33. How the animal transgenesis would become a boon to a mankind?
34. 'Transgenesis a boon or ban' justify.
35. What is role of molecular biology in nitrogen fixation?
36. Explain herbicide resistant plants.
37. Write down about the fungi as biocontrol agent.
38. What are advantages of green manuring?
39. Briefly write about the production of transgenic fish.
40. Write the steps in microinjection gene transfer.
41. Name some biotechnological tool for disease diagnose.
42. What is polymerisation chain reaction?
43. Write briefly about pearl production with a biotechnological approach.
44. How the antibodies are produced by using microorganisms?
45. Write about extraction of intracellular enzymes.
46. What are bacterial biofertilizers.
47. Explain waste water treatment using microbes.
48. Briefly describe the theory of succession.
49. Briefly write about the economic and social benefits of composting.
50. Briefly write about earthworms and organic waste management.
51. Discuss about vermi composting.
52. Write about phases in vermivomposting.
53. What are principles of bioremediation?
54. Explain the criteria of hazardous waste and how their management is done.
55. Give a detailed account of waste plastic management.
56. Write about role of genetic engineering in bioremediation.
57. Give an account of bioremediation by xenobiotics.

58. Briefly note the immobilization methods by covalent binding.
59. What are uses of immobilized enzymes?
60. Write down about the scope of bioprocessing.
61. Write about types of chromatography. Explain any type.
62. Explain catabolic regulation.
63. Explain glucose as carbon source in the fermentation medium.
64. Write short note on reverse osmosis.