**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27**

Register Number:

Date:

**END SEMESTER EXAM: APRIL 2022**

**(Exam conducted in July 2022)**

**B.Sc BIOTECHNOLOGY- VI SEM**

**BT 6115: Industrial and Animal Biotechnology**

**Time: 2.5 Hrs Max Marks: 70**

**Note The question paper has three parts and one printed page**

1. **Answer any Ten of the following 10x2=20**
2. What are the nitrogen sources for an industrial media component?
3. What is the importance of the size of the sparger opening nozzle?
4. What are the materials used to construct a fermenter vessel?
5. What are single cell oils?
6. How are the aseptic conditions maintained for oxygen transfer in industrial reactors?
7. What is head space?
8. Explain the role of serum in animal cell culture.
9. For which of the examples of a transgenic animal can we use the microinjection technique?
10. You have an 80% confluent cell plate and 100% confluent cell plate. Which plate will you choose for further passage and why?

10. What is the importance of promoters in transgene expression?

11. Define passage number.

12. Give one example each of natural and synthetic media.

1. **Answer any Five of the following 5x6=30**
2. With a need labeled diagram explain a stirred tank bioreactor.
3. Discuss the industrial production of citric acid.
4. Distinguish between bulk and fine enzymes.
5. What is the biological process that is considered when designing a fermenter?
6. What is a knock out technology? What are its applications?
7. State any three examples for cell lines.
8. Explain the three different types of cell culture in detail.
9. **Answer the following 2x10=20**
10. a. Discuss the methods used for strain improvement.

**OR**

b. Explain the procedure and the industrial set up for production of Penicillin.

1. a. Explain in detail the individual steps of performing animal cell culture. Describe any two types of contaminants of animal cell culture. (7+3)

**OR**

b. How is an animal clone created? What problems do they possibly carry?

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