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

**B. Sc (MICROBIOLOGY)–VI SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

**MB6218-MICROBIAL TECHNOLOGY**

**Time: 2 ½ Hours Max Marks: 70**

This paper contains **1** printed page and **4** parts

**I. Answer any Five of the following. 5x3=15**

1. List the applications of PCR.
2. Write the recognition sequence of EcoRI, BamHI and Hind III.
3. Differentiate genomic and cDNA library.
4. Comment on SCP.
5. Define IPR and mention its significance.
6. Write the principle of biosensor.
7. Comment on insecticide resistant transgenic plants.

**II. Answer any Five of the following. 5x5=25**

1. Comment on pET vectors.
2. Write a short note on the production of vitamin B12.
3. Describe calcium chloride mediated gene transfer mechanism.
4. Write a short note on genetically modified *Pseudomonas putida* used in bioremediation.
5. Illustrate the components of a phylogenetic tree.
6. With a flow chart write the protocol of DNA finger printing.
7. Differentiate gene knockout and knockdown.

**III. Answer any Two of the following. 2X10=20**

1. Explain Insulin production.
2. Discus the method of wine production.
3. Describe the principle, procedure and applications of delayed fruit ripening.

**IV. Answer the following. 1x10=10**

1. When *E. coli* cells transformed with pUC vectors carrying the gene of interest are plated on to LB media supplemented with ampicillin, three blue colour colonies were observed. Based on the above results, answer the following questions.
2. Mention whether gene of interest has been transferred to the *E. coli* cells? (2 Marks)
3. What do these blue colour colonies indicate? (2 Marks)
4. Explain the principle of this screening method. (6 Marks)