

Seat No.	
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B.Sc. (Part - III) (Semester - VI) (CBCS)

Examination, March - 2024

MICROBIOLOGY (Paper-XIII)

Microbial Genetics (DSE F-49)

Sub. Code : 81704

Day and Date : Tuesday, 26-03-2024

Total Marks : 40

Time : 02.30 p.m. to 04.30 p.m.

- Instruction :**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Draw neat diagrams wherever necessary.

Q.1) Choose the correct alternative and rewrite the sentence.

[8]

- i) *Escherichia coli* chromosome is DNA molecule.
 - a) Circular double stranded
 - b) Linear double stranded
 - c) Circular single stranded
 - d) Linear single stranded
- ii) The method used for paternity determination is
 - a) DNA fingerprinting
 - b) PCR
 - c) DNA sequencing
 - d) Electrophoresis
- iii) Gradient plate technique is used for isolation of mutant.
 - a) Auxotrophs
 - b) Streptomycin resistant
 - c) Lactose negative
 - d) Tryptophan less
- iv) is an organism which requires one or more growth factors.
 - a) Auxotroph
 - b) Prototroph
 - c) Autotroph
 - d) Heterotroph
- v) The method for DNA sequencing was developed by
 - a) Alek Jeffreys
 - b) Sanger *et. Al*
 - c) McClintock
 - d) Warner Arber

- vi) Pribnow box is rich in sequence.
- | | |
|-------|-------|
| a) AC | b) GC |
| c) AG | d) TA |
- vii) In prokaryotes, the consensus nucleotide sequence of Pribnow box is
- | | |
|-----------|-----------|
| a) TATAAT | b) GAGAAG |
| c) TCTCCT | d) GCGCCG |
- viii) The polymerase chain reaction is
- | |
|--------------------------------|
| a) DNA sequencing technique |
| b) DNA degradation technique |
| c) DNA amplification technique |
| d) None of these |

Q.2) Attempt any TWO of the three sub-questions :

[16]

- i) What is genetic engineering? Explain its applications in medicine and agriculture.
- ii) What is mutation? Explain methods of isolation and detection of mutants.
- iii) Describe the technique and applications of DNA fingerprinting.

Q.3) Write short notes on : (Any four)

[16]

- i) Polymerase chain reaction
- ii) Cosmids
- iii) Folded fiber model of *E. coli* Chromosome
- iv) Types of transposable elements
- v) Vectors in genetic engineering
- vi) Organization of tryptophan operon