

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7204

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Unique Paper Code : 2493010018

Name of the Paper : Biotechnology (DSE)

Name of the Course : **B.SC. (HONS.) BIOCHEMISTRY (NEP)**

Semester : VIII

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt 4 questions in all.

3. **Question no. 1** is compulsory

1A. Justify the following statements:

- (i) The success of Dolly is considered as the strong evidence of genomic equivalence in differentiated cells.
- (ii) Embryo in IVF is maintained at 5% oxygen, lower than atmospheric oxygen.
- (iii) Plant based vaccines are more stable than conventional vaccines.
- (iv) BOD: COD ratio is important in waste water treatment.
- (v) Expression of factor VIII is not possible in *E.coli*.

B. Define the following terms:

- (i) Biosorption
- (ii) Callus
- (iii) Antisense RNA
- (iv) Microinjection
- (v) Malting

(10, 5)

2. Differentiate between:

- (i) Aerobic and Anaerobic waste water treatment process.
- (ii) Viral vectors and liposome mediated gene transfer in animal cells.
- (iii) Gene addition and gene subtraction approach of genetic engineering in plants.

(5, 5, 5)

3A. Discuss the methods of sperm collection in artificial insemination method.

B. Discuss the strategy of recombinant insulin production in *E.coli*.

P.T.O.

- C. A tomato plant engineered to produce a viral antigen is consumed as food. How does eating the tomato trigger immunity?

(5, 5, 5)

- 4A. Discuss the different modes of fermentation.

- B. How could retroviruses be used for gene therapy in SCID?

- C. What are endotoxins? How can these proteins overcome the problems encountered by use of pesticides?

(5, 5, 5)

- 5A. What are single cell proteins? Why is bacterial SCP less preferred for human consumption?

- B. What are the safety and ethical issues related to genetically modified crops?

- C. What are risks associated with the *invitro*-fertilization?

(5, 5, 5)

6. Write short notes on:

(i) Superbugs

(ii) Roundup Ready crops

(iii) Non-viral gene delivery methods

(5, 5, 5)