

QP CODE 75832

Fourth Semester M.Sc., Degree Examinations

OCTOBER 2022

(C.B.C.S New Scheme)

BIOTECHNOLOGY

Paper: Hard Core 4.2: MEDICAL BIOTECHNOLOGY

Time: 3 hrs]

[Max. Marks: 75

Note : 1) All questions are compulsory
2) Draw diagrams wherever necessary

1. Answer briefly/Define:

7 x 2 = 14

- G6PD deficiency.
- Sickle cell anemia
- $\Delta F508$ gene
- siRNA
- Erythropoietin hormone
- WNT
- Copyright

2. Write short notes on any THREE of the following:

3 x 5 = 15

- Ultrasonography
- Monoclonal antibodies
- Overview of JAK/STAT pathway
- Stem cell therapy

3. Answer any TWO of the following:

2 x 8 = 16

- Write an account on ribozymes as therapeutic agents.
- Discuss therapeutic applications of hormones.
- Write an account on computational drug design and drug design softwares.

4. What is gene therapy? Explain gene delivery approaches and gene therapeutic strategies.

1 x 15 = 15

OR

Describe the features, physiological role and preparation of cytokines.

Contd.....2

5. Write a detailed account on types, production and applications of vaccines. 1 x 15 = 15
OR

Discuss the levels and criteria used for biosafety. Add a brief note on Indian Biosafety Guidelines.

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Fourth Semester M.Sc., Degree Examinations**OCTOBER 2022***(C.B.C.S New Scheme)***BIOTECHNOLOGY****Paper: Hard Core 4.3: RESEARCH METHODOLOGY**

Time: 3 hrs]

[Max. Marks: 75

*Note : 1) All questions are compulsory**2) Draw diagrams wherever necessary***1. Answer briefly/Define:**

7 x 2 = 14

- a) LD_{50}
- b) Variance
- c) Student's t – test
- d) Relative mobility
- e) Svedberg coefficient
- f) Poster presentation
- g) Bibliography

2. Write short notes on any THREE of the following:

3 x 5 = 15

- a) Identification of research problem
- b) Probability Distributions
- c) Mass spectrometry
- d) Preparative centrifugation

3. Answer any TWO of the following:

2 x 8 = 16

- a) Discuss the types of computer – based sources of literature
- b) Write a note on importance of GLP and MLP
- c) Explain in detail on Southern blotting techniques.

4. Give an account of principle instrumentation and applications of HPLC

1 x 15 = 15

OR

Discuss in detail on scientific report writing.

Contd.....2

5. Write notes on importance of laboratory animals in research.

1 x 15 = 15

OR

Calculate the probability of getting 0, 1, 2, 3 and 4 heads when a coin is tossed four times.

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IV Sem
M.Sc

Fourth Semester M.Sc., Degree Examinations**OCTOBER 2022***(C.B.C.S New Scheme)***BIOTECHNOLOGY****Paper: Hard Core 4.1: BIOPROCESS TECHNOLOGY**

Time: 3 hrs]

[Max. Marks: 75

*Note : 1) All questions are compulsory**2) Draw diagrams wherever necessary*

7 x 2 = 14

1. Answer briefly/Define:

- Bioplastics.
- Beat Molasses
- Precursors
- Pasteurization
- Cell immobilization
- Impeller
- Stoichiometry

2. Write short notes on any THREE of the following:

3 x 5 = 15

- Inoculum development
- Configuration of fed batch fermenter
- Wet sterilization techniques
- Microbial production of vinegar

3. Answer any TWO of the following:

2 x 8 = 16

- Explain the industrial production of ethanol
- Discuss on types of Bioreactors
- Write an account on Carbon sources of industrial media

4. Explain the various processes employed in the recovery of the products from the fermented wash.

1 x 15 = 15

OR

Write a detailed account on Kinetics of fed batch fermentation process.

Contd.....2

5. Explain the process of industrial production of beer and wine.

1 x 15 = 15

OR

Explain the strategies employed in the production of single cell protein and biofertilizer.

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MSc
Biotech