

BLDE (DEEMED TO BE UNIVERSITY)

01/04/24

B.Sc. in Microbiology

[Time: 3 Hours]

[Max. Marks: 80]

V SEMESTER

PAPER - I (Industrial Microbiology)

QP CODE: 8505

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

Long Questions

10X1 = 10 Marks

1. What is the fermentation process? Explain different types of fermenters.

Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Explain production of wine. Its uses.
3. Explain different types of fermentation processes.
4. What are measurement and control of fermentation parameters
5. Write a note on the history of industrial microbiology.
6. Write a note on application industrially important products.
7. What is a bioreactor? Write a note on its types.
8. Explain Cell disruption and centrifugation.
9. Explain Lyophilization and freeze drying.
10. Explain production of Citric acid. Its uses.

Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Write a note on Lyophilization.
12. Write a note on Vitamin B12.
13. Write a note on solvent extraction.
14. Write a note on a) Citric acid b) Glutamic acid
15. Write a note on the importance of foaming and aeration.
16. What are pilot scale fermenters?
17. What are the uses of amylase and protease?
18. What is down streaming?
19. What is media? Mention its types
20. What is cell disruption?
21. Brief on fermentation parameters- a) pH b) temperature

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7/24

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V SEMESTER

PAPER - II (Immunology)

QP CODE: 8506

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

Long Questions

10X1 = 10 Marks

1. Explain primary and secondary immune response.

Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Explain the functions of three different immune cells.
3. What are immunological techniques? Explain any.
4. What is Western Blotting? Explain in detail.
5. Write a note on Robert Koch and Peter Medawar.
6. What is immunity? Explain its types.
7. Write a note on immune organs.
8. Write a note on cell mediated immune response?
9. Explain the structure of MHC I and II molecules.
10. Write the principle of ELISA and its application.

Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Write an account on contributions of Edward Jenner.
12. What are chimeric antibodies?
13. What is a Humoral immune response?
14. Write a note on different types of T cells.
15. Write a note on antibodies.
16. What are epitopes and adjuvants?
17. List out the developments in the field of immunology.
18. What is hypersensitivity? Give an example.
19. Write the characteristics of antigen.
20. What are Phagocytic cells and NK cells?
21. Explain the principle of agglutination.

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5/07/2024

B.Sc. in Microbiology

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V SEMESTER

PAPER - III (Advances in Microbiology)

QP CODE: 8507

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

Long Questions

10X1 = 10 Marks

1. Explain bacterial diversity using a metagenomic approach.

Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Explain transformation.
3. Write about the virulence factor in viruses.
4. Explain antimicrobial resistance.
5. What are biofilms? Explain its significance.
6. Write a note on Quorum sensing in bacteria.
7. Explain the implications of synthetic biology with respect to bacteria.
8. What are pathogenicity islands? Write their characteristics.
9. Write a note on networking in biological systems.
10. Write a note on metaproteomics and metatranscriptomics.

Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Explain the significance of biofilms in the environment.
12. What are genomic islands?
13. What is host specificity?
14. What is coat protein?
15. Write a note on conjugation.
16. Write a note on transduction.
17. What is metabolomics?
18. What is PAI?
19. Write a note on bacterial genome evolution.
20. Write a note on viral diseases.
21. Write a note on synthetic biology.

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V SEMESTER

PAPER - IV (Biomathematics & Biostatistics)

QP CODE: 8508

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

Long Questions

10X1 = 10 Marks

1. Short note on Application of statistics in Research

Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Explain the graphical methods of representing quantitative data
3. Explain presentation of data
4. Explain about measures of central tendency.
5. Define data and types of data
6. Explain about Range, Mean Deviation and Standard Deviation
7. Define Skewness and Quartosis with example
8. Classify and Tabulate the following data---Data:-1.58, 1.08, 1.58, 1.47, 2.18, 1.69, 1.52, 1.58, 1.08, 1.73, 1.36, 1.33, 1.22, 1.47, 1.52
9. Let A and B be the two possible outcomes of an experiment and suppose $P(A) = 0.4$, $P(A \cup B) = 0.5$ and $P(B) = p$ for what choice of pare A and B mutually exclusive? For what choice of pare A and B independent
10. The duration of time from first exposure to HIV infection to AIDS diagnosis is called the incubation period. The incubation periods of a random sample of 10 HIV infected individuals is given below (in years): 12.0 10.5 9.5 6.3 13.5 12.5 7.2 12 9.4 13.2
 - a. Calculate the sample mean.
 - b. Calculate the sample median.
 - c. Calculate the sample mode
 - c. Calculate the sample standard deviation.

Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Briefly explain about Pie chart and Ogive curves.
12. Define Standard Deviation
13. Define Sample space, Compliment, Intersection and Union of Events
14. What is coefficient of variation? Write application of coefficient of variation.
15. Briefly explain Law of addition and Multiplication

16. Comment on children on community

| | Height | weight |
|------|---------|--------|
| Mean | 40 inch | 10 kg |
| SD | 5 inch | 1.5 kg |

17. Four cards are drawn at random from a pack of 52 cards, find the probability that they are king, a queen, a Jack and an Ace.

18. Explain about Bar chart and Types of Bar chart.

19. Define Axiomatic probability.

20. Draw histogram, frequency polygon and find Mode for the following Data

| Weight(grams) | 100-120 | 120-140 | 140-160 | 160-180 | 180-200 | 200-220 | 220-240 |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| Frequency | 4 | 6 | 27 | 34 | 20 | 6 | 3 |

21. Define Event, Mutually exhaustive and Exclusive Events