

July-2023

**BLDE (DEEMED TO BE UNIVERSITY)**

**B.Sc. in Microbiology**

[Time: 3 Hours]

[Max. Marks: 80]

**III SEMESTER**

**PAPER - I (Microbial Physiology & Metabolism)**

**QP CODE: 8305**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions**

**10X1 = 10 Marks**

1. Describe the lactate fermentation along with homo fermentative and hetero fermentative pathways.

**Short Essays: (Any – 8)**

**5 X 8 = 40 Marks**

2. Describe electron transport chain.
3. Classify microbes based on their nutritional requirements.
4. Explain primary and secondary active transport.
5. Describe TCA cycle.
6. Explain the concept of anaerobic respiration in microbes.
7. Describe fermentation process.
8. Explain an-oxygenic photosynthesis and phototrophs.
9. Write a note on Cyanobacteria and purple bacteria.
10. Discuss the similarities and differences between an-oxygenic phototrophic bacteria and oxygenic phototrophs.

**Short Answers: (Any – 10)**

**3 X 10 = 30 Marks**

11. Write a note on green bacteria.
12. What are methanogens?
13. Write a note on phototrophs.
14. Importance of nitrogen fixation.
15. Write a note on cyanobacteria.
16. Write a note on Uniport, symport and antiport.
17. Write a short note on aerobic respiration.
18. What is the hetero fermentative pathway?
19. Write a note on microbial physiology.
20. Write a note on chemoheterotrophic metabolism.
21. What is the Pasteur Effect?

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## B.Sc. in Microbiology

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### III SEMESTER

### PAPER - II (Cell Biology)

QP CODE: 8306

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

#### Long Questions

10X1 = 10 Marks

1. Explain different model's plasma membrane and its function.

#### Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. Write difference between prokaryotic and eukaryotic cell.
3. Ultra-structure of endoplasmic reticulum.
4. Write short note on microtubules and centrioles.
5. How protein is transported from Golgi complex.
6. Structure of mitochondria.
7. Discuss in brief about nuclear pore complex.
8. Types of programmed cell death.
9. Write about types and function of lysosomes.
10. Write about nuclear pore.

#### Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Cell regulation.
12. Composition of extracellular matrix.
13. Carcinogenesis.
14. Function of Golgi complex.
15. Endoplasmic reticulum and its type.
16. Chromatin.
17. Functions of ribosomes.
18. Cyclic AMP.
19. What are types of cancer?
20. Cell surface receptor.
21. Gap junction.

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[Max. Marks: 80]

**III SEMESTER  
PAPER - III (Molecular Biology)  
QP CODE: 8307**

Your answer should be specific to the questions asked.  
Write Question No. in left side of margin.

**Long Questions**

**10X1 = 10 Marks**

1. Explain translation

**Short Essays: (Any – 8)**

**5 X 8 = 40 Marks**

2. Explain Fidelity of DNA Replication

3. Topology

4. Renaturation and Denaturation

5. TATA Box

6. Eukaryotic RNA polymerase

7. Semiconservative DNA replication

8. Helicase and Gyrase

9. Ribosome structure and function

10. Genetic code and its characteristics

**Short Answers: (Any – 10)**

**3 X 10 = 30 Marks**

11. DNA Polymerases

12. Nucleosides

13. Bi-directional replication

14. Primosome

15. Denaturation and renaturation

16. ~~Bi-directional replication~~ *Types of DNA*

17. LAC- operon

18. Sigma Factor

19. Cot curves

20. Inducible operon

21. tRNA structure and function

*July 2023.*

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**B.Sc. in Microbiology**

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[Max. Marks: 80]

**III SEMESTER**

**PAPER – IV (Food Fermentation)**

**QP CODE: 8308**

Your answer should be specific to the questions asked.  
Write Question No. in left side of margin.

**Long Questions**

**10X1 = 10 Marks**

1. Elaborate on different types of fermented foods advantages and health benefits.

**Short Essays: (Any – 8)**

**5 X 8 = 40 Marks**

2. Write a note on milk based fermentation.
3. Describe the process of fermentation and the organisms involved in it..
4. Describe fermentation of wine..
5. Write a note on Probiotics and prebiotics.
6. Explain the concept of anaerobic respiration in microbes.
7. Health benefits involved in probiotics.
8. Vegetables based fermented foods.
9. What is the role of fermented food in maintaining health?
10. Write a note on continuous, fed batch culture and sterilization.

**Short Answers: (Any – 10)**

**3 X 10 = 30 Marks**

11. What are different types of microbes involved in fermentation?
12. Write a note on Dahi and buttermilk.
13. Write a note on grain based fermented food.
14. Importance of yeast cells.
15. Write a note on alcohol. How is it produced as a byproduct?
16. Write a note on microbes involved in fermentation.
17. Write a short note on fermentation and types.
18. What is the application of fermentation?
19. Write a note on Sauerkraut and pickle.
20. Write a note on batch fermentation.
21. What is the Pasteur Effect?