Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 27076

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Second Semester

Biotechnology

BT 6202 — MICROBIOLOGY

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define microbiology and microorganisms.
2. What is TEM?
3. What is the connection between virus and cancer?
4. What processes are involved in bacteriophages assembly?
5. Define nutrition and nutrients based on need and quantity.
6. Define growth factors with examples.
7. Describe the basic effects of temperature on microbes.
8. What antimicrobial processes are inhibited in the presence of extraneous organic matter.
9. Identify major methods of food preservation
10. What is meant by biotransformation?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the main features of the scientific method, and differentiate between inductive method and deductive reasoning between hypothesis and theory.

Or

(b) Compare and contrast three common laboratory techniques for separating bacteria in a mixed sample.

12. (a) Describe 10 unique characteristics of viruses.

Or

(b) Describe the various stages of the multiplication of bacteriophages.

13. (a) Discuss different types of autotrophs and their energy sources.

Or

(b) Describe the process of population growth and how it is measured.

14. (a) Briefly explain how the type of microorganisms present will influence the effectiveness of exposure to antimicrobial agents.

Or

(b) Explain the desirable features of antimicrobial agents and what are the factors that influence their effectiveness.

15. (a) Describe industrial fermentation and the role of the fementor.

Or

(b) Describe nitrogen fixation, ammonification nitrification and denitrification and how microbes are involved in these process.

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 71485

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Second Semester

Biotechnology

BT 6202 — MICROBIOLOGY

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the contributions of Louis Pasteur.
2. What is numerical aperture?
3. Name any four major characteristics of microorganisms.
4. Give the functions of fimbriae.
5. Define selective media.
6. How do you calculate doubling time?
7. Mention the role of HEPA filter.
8. What is decimal reduction time?
9. Enlist any two organic acids produced by fungi.
10. State the importance of *Bacillus thuringiensis*.

PART B — (5 × 16 = 80 marks)

11. (a) What are stain and dye? Describe the various differential staining methods. (16)

Or

(b) Give an account on Koch postulates and explain about theory of spontaneous generation and germ theory of diseases. (16)

12. (a) Describe in detail the various steps involved in replication of lysogenic / temperate phage with illustration. (16)

Or

(b) Discuss the classification and reproduction of fungi in detail. (16)

13. (a) How do you classify micro-organisms on the basis of nutritional requirements? What is the elementary composition of bacteria and discuss their physiological role. (16)

Or

(b) Define bacterial growth and discuss various phases of it. Add a note on chemostat and turbidostat. (16)

14. (a) Briefly discuss each of the following treatments used to control microbial growth : (i) autoclaving (ii) Pasteurisation (iii) Filtration (iv) Ionising radiation. (4 × 4)

Or

(b) Name four commercially available antiviral drugs and give details on various anti-viral agents with their mode of action. (16)

15. (a) Discuss on the production of secondary metabolites and their biological applications in industry. (16)

Or

(b) Write notes on: (i) Biofertilizer (ii) Biopesticide (8 + 8)

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Reg. No. | | | | | | | | | | | | |

Question Paper Code : 77040

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Second Semester

Biotechnology

BT 6202 — MICROBIOLOGY

(Regulation 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the principle of acid fast staining?
2. What is scanning electron microscopy?
3. What are yeasts?
4. What is flagella?
5. What is a microbiological medium?
6. Define bioenergetics.
7. What are antibiotics?
8. What is synchronous growth?
9. What is a biosensor?
10. What are biofertilizers?

PART B — (5 × 16 = 80 marks)

11. (a) Describe the following
    - (i) Gram's staining (4)
    - (ii) Flagallar staining (4)
    - (iii) Capsular staining (4)
    - (iv) Fungal staining. (4)

Or

(b) Discuss the following
    - (i) TEM applications to study bacteria. (8)
    - (ii) Classification of microorganisms. (8)

12. (a) Describe the classification, structure and multiplication of Algae. (16)

Or

(b) Describe the structures of

(i) Bacteriophages (8)

(ii) Fungi. (8)

13. (a) Describe a bacterial growth curve and its applications. (16)

Or

(b) Describe anaerobic bacterial metabolism with an example. (16)

14. (a) Describe the following

(i) Chemical control of microorganisms. (8)

(ii) Antifungal agents. (8)

Or

(b) Discuss with a suitable example

(i) Anti bacterial agents. (8)

(ii) Clinically important microorganisms. (8)

15. (a) Write notes on

(i) Food preservation (8)

(ii) Vit B_{12} production using microorganisms. (8)

Or

(b) Write notes on

(i) Bioleaching (8)

(ii) Biogas. (8)

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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80159

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Second Semester

Biotechnology

BT 6202 — MICROBIOLOGY

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. In the Gram stain why does alcohol decolourise Gram negative bacteria?

2. Define: Genus, Species and train.

3. What is a temperate phage? What is the name of its replication process?

4. What is lower fungi and why it is called as lower fungi?

5. Enlist the purpose of differential media.

6. What are organotrophs?

7. Which type of materials require gamma rays for sterilization?

8. Name any two vapor-phase disinfectants.

9. What are antibiotics?

10. Define botulism. Name the organism responsible for botulism.

PART B — (5 × 16 = 80 marks)

11. (a) How do you classify microorganisms? Mention about the methods employed. (16)

Or

(b) Discuss how gram–positive, gram-negative, acid-fast bacteria and mycoplasma differ in their cell wall structure and composition along with their appropriate staining methods. (16)

12. (a) What are the different types of algae? Add a note on life cycle types of algae. (16)

Or

(b) Describe the different life cycle patterns of *Saccharomyce* with suitable illustrations. (16)

13. (a) How the organisms are classified based on its energy requirement and carbon requirements? (16)

Or

(b) Write an essay on "The anaplerotic mechanisms utilized by bacteria to replenish intermediates of biochemical pathways. (16)

14. (a) Write in detail about the Bacterial resistance to antibiotics. (16)

Or

(b) Give a detailed note on host –microbe interactions and immunity. (16)

15. (a) Give an account of food preservation and botulism and their control. (16)

Or

(b) Give a brief account on the following (i) Biosensors (ii) Bioleaching (iii) Biopreservatives (iv) Bioremediation. (4×4)