FOOD MICROBIOLOGY

UNIT-1 MICROBES-STRUCTURE AND MULTIPLICATION

1. What are microbes?
2. Define microscope.
3. Write about staining technique.
4. Define gram staining.
5. What is capsular staining?
6. Define flagellar staining.
7. What is flagella?
8. What are acid fast organisms?
9. Define bacteria
10. Define viruses
11. Define fungi
12. Define algae
13. What is growth media?
14. Difference between aerobic and anaerobic organisms.
15. Give two beneficial effects of microorganisms
16. Give two harmful effects of microorganisms
17. What is the purpose of the acid fast stain?
18. What are the different types of microorganisms?
19. What is simple staining?
20. Define differential staining.

PART-B

1. Detail note on food microbiology.
2. Write about the various types of staining
3. Write short note on electron microscope.
4. Write difference between light and electron microscope?
5. What are the different staining method.
6. How you evaluate the microbial growth.
7. Write the morphological identification method for bacteria.
8. Write the nomenclature of microorganisms.
9. Write about the utilization of energy by microbes?
10. Write short note on the aerobic utilization of energy?

PART-C

1. What is microbes? Discuss detail in history and classification of micro organisms?
2. Explain the role of microscope. Differentiate light and Electron microscope.
3. Summarize the different staining techniques.
4. Elaborate the structural organization and multiplication of bacteria.
5. Explain the structural organization and multiplication of algae and fungi.
6. Discuss elaborate the nutritional requirements of bacteria.
7. What is media? Justify the different media used for bacterial culture.
8. Illustrate the growth of microorganisms and explain the different stages of growth curve.
9. Justify the aerobic and anaerobic bioenergetics and utilization of energy?
10. Explain the biosynthesis of important molecules in aerobic and anaerobic process.

UNIT-2 ROLE OF MICROBES IN SPOILAGE OF FOOD AND FOOD BORNE

PART-A

1. Write about microbes associated with food spoilage
2. Define food spoilage
3. What is spoilage potential?
4. Define food-borne infections
5. Define food poisoning
6. What are microbial toxins?
7. Define gram positive bacteria
8. Define gram negative bacteria
9. What are food-borne pathogens
10. Write about disease caused by *E.coli*
11. Write about Vibrio cholerae in food
12. What are toxigenic algae?
13. Define toxigenic fungus with examples
14. What is food borne viruses?
15. What are helminthes?
16. Define nematodes.
17. What are protozoa?
18. What are coliforms?
19. Give few borne infections with the respective disease causing organism
20. Give few factors affecting spoilage of foods

PART-B

1. What are all the factors affecting spoilage food?
2. What are all the food borne diseases?
3. What are all the causative agents of food spoilage?
4. How to prevent the food spoilage?
5. Write Short note on food poisoning.
6. What is mocribial toxins? Explain detail.
7. Discuss the types of microbial toxin types.
8. Write about short note on gram positive and gram negative bacteria.
9. Explain the food borne viruses.
10. Write short note on toxigenic algae.

PART-C

1. Explain detail in factors affecting spoilage of food.
2. Brief regarding microbial associated with various food groups their spoilage potential.
3. Write in detail regarding microbiological spoilage problems with typical food products.
4. Give an account on food borne infections and food poisoning.
5. What are microbial toxins? Explain the types.
6. Discuss the gram positive and gram negative food borne pathogens.
7. Write short note on following microbes:
    a) *Salmonella*
    b) Coliforms
    c) *E.coli*
    d) *Shigella*
    e) *V.cholerae*
8. Explain the toxigenic algae and fungi.
9. Explain the mode of food borne viruses.
10. What are nematodes and protozoa? Explain in detail.

UNIT-3 MICROBES IN FOOD FERMENTATIONS

PART-A

1. What is fermentation?
2. Define homolactic fermentation
3. Define heterolactic fermentation
4. Write few fermentative bacteria
5. Explain fermentative yeasts
6. Write few fermentative fungi
7. Define glycolysis
8. What is lactic acid fermentation?
9. Define starter culture
10. What are alcoholic fermentations?
11. What is strain selection?
12. Define recombinant strain
13. What are mutated strains?
14. Write few fermented vegetables
15. What is cheese and how is it made?
16. Write a note on bread making.
17. What are fungal fermentations?
18. Write a note on biochemistry of fermentations
19. What are the characteristics of starter cultures?
20. What are fermentors?

PART-B

1. Write a brief notes on importance of bacteria in food fermentation?
2. Difference between homo and hetero fermentative microorganisms
3. Elaborate about biochemistry of fermentations?
4. What is fermentation and pathway involved in fermentation?
5. Explain the mechanism of lactic acid fermentation?
6. Brief about biochemistry of alcoholic fermentation?
7. Write note on microbes associated with typical food fermentation?
8. Write a brief notes on importance of yeast and fungi in food fermentation?
9. what is starter culture and important characteristics for strain selection?
10. Steps involved in alcoholic fermentation?

PART-C

1. What is fermentation? Explain the two types of fermentative bacteria, yeast and fungi
2. Brief regarding biochemistry of fermentation.
3. Explain the lactic acid production.

4. Write the procedure and explain the alcoholic fermentations.
5. Write the procedure and characteristics of yeast fermentations.
6. Write the major characteristics and strain selection of yeast fermentation.
7. Discuss various factors involved in food fermentations.
8. Give an account on the various mechanisms of Lactic acid fermentations.
9. Discuss various factors affecting growth of microorganisms in food.
10. Write about the general microbes involved in food fermentations?

UNIT-4 MICROBIAL AGENTS OF FOOD BORNE ILLNESS

PART-A

1. Define infections
2. What are food borne infections?
3. Define food poisoning
4. What are microbial toxins?
5. What are bacterial toxins?
6. How do toxins cause disease?
7. What are exotoxins?
8. What are endotoxins?
9. How bacteria can cause food poisoning?
10. What is the difference between an endotoxin and an exotoxin?
11. What is toxigenesis?
12. What is the infectious agent?
13. What is bacterial pathogenesis?
14. What is the effect of pathogenic bacteria in food?
15. What are the pathogenic bacteria?
16. What is bacterial virulence?
17. List the pathogens in food
18. How can we prevent food borne illnesses?
19. What are toxigenic algae? List few
20. What are toxigenic fungi? List few

PART-B

1. Explain food born infections and food poisoning?
2. List the food born pathogens and their source for contamination of food?
3. Explain the cause of food poisoning?
4. Write note on microbial toxins?
5. Role of *E. Coli* in food born infection?
6. Details on Pathogenecity of salmonella and shigella
7. Contribution of fungus towards food born illness?

8. Write note on enteric bacteria?
9. Brief about food born viruses?
10. Write note on food born infection caused by –
    a. helminth
    b. nematodes
    c. protozoa

PART-C

1. Write short note on
    a. Spoilage of bread
    b. Food poisoning by *Clostridium boutlinum*
2. Discuss microbial toxins and types?
3. State the mechanism of action of food borne pathogens.
4. Write short note on
    a. Hepatitis
    b. Clostridium botulinum
    c. *Vibrio* sp.
5. What are the food borne viruses? Explain the viruses.
6. Briefly explain the morphological features of nemotodes.
7. Write on outline of food borne viruses.
8. Describe the food poisoing?
9. Discuss the economic importance of fungi with examples.
10. Write in detail about Food Spoilage: Causes, Signs, and Prevention

UNIT-5 MICROBIAL EXAMINATION OF FOOD

PART-A

1. How to detect microbes in food?
2. What is enumeration of microorganisms?
3. Why is it important to enumerate bacteria?
4. What is the standard plate count method?
5. What is a direct microscopic count?
6. What is total viable count in microbiology?
7. What is a cell counter?
8. What is meant by viable cells?
9. What is viability in biology?
10. Define indicator organisms
11. Why are coliform bacteria considered indicator organisms?

12. Define coliform bacteria
13. Define Rapid methods and automation in microbiology.
14. Define Hepatitis A virus.
15. What is listeria monocytogenes.
16. What is Rotavirus?
17. What is Virus?
18. What is *C.botulinum*?
19. Define *E.coli*
20. What is pathogens?

PART-B

1. Explain the steps involved in microbial examination?
2. Write note on indicator organisms and microbiological criteria?
3. Explain rapid and automated microbial method?
4. Detection methods for enteric bacteria?
5. Steps involved in detection of Rotavirus from food sample?
6. Write a short note on Hepatitis A virus?
7. Write notes on rapid and automated microbial methods for detection of food born pathogen?
8. Detection of salmonella from food sample?
9. Write notes on development and importance in detection of food born pathogen?
10. Detection methods for *E. coli*?

PART-C

1. Give a brief account on detection and enumeration of microbes in food.
2. Write commonly used method for isolation of pure culture of bacterium.
3. Write the development and impact on detection of food borne pathogens.
4. Explain the detection methods for *E.coli* and *Staphylococcus.*
5. How do you examine the Hepatitis A virusand *Vibrio* sp. from various food samples?
6. Write brief note on Rotavirus with example.
7. Write notes on development and importance in detection of food born pathogen?
8. Explain in detail rapid and automated microbial method?
9. What are the steps involved in detection of Rotavirus from food sample?
10. How to identify of food born pathogens from food sample?