

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (8x1.5=12)

- i. Which body part contains the largest microbial population?
A Stomach B Small intestine
C Large intestine D Mouth
- ii. First antibiotic used against Tuberculosis; Streptomycin was discovered by:
A Alexander Fleming B Selman Waksman
C Howard Florey D Ernst Chain
- iii. Which among the following is the microaerophilic bacteria:
A Treponema B Spirochaete
C Campylobacter jejuni D Salmonella
- iv. Which of the following is the recommended heat temperature and time period for moist heat sterilization process conducted in an autoclave?
A 180 degree C for 15 minutes B 121 degree C for 15 minutes
C 126 degree C for 15 minutes D 160 degree for 45 minutes
- v. Some bacteria and fungi need an iron receptors molecule for their growth which is an important virulent factor of bacterial pathogenesis, what is it called?
A Ionophores B Siderocytes
C Siderophores D None of these
- vi. Covid-19 disease is caused by:
A MERS-CoV B SARS-CoV-2
C Influenza A Virus D Hemophilus influenzae
- vii. Quinolones and Fluoroquinolones act as antibacterial agents by inhibiting enzyme:
A DNA Gyrase B RNA Polymerase
C DNA Polymerase D Ribosome

viii. What type of antibiotics works by inhibiting cell wall synthesis:

- A Tetracyclines B Aminoglycosides
C Macrolides D β -Lactam antibiotics

Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (8 x 4 =32)

- i. What is the significance of microbiota in the normal functioning of Human body?
- ii. What is the contribution of Louis Pasteur in the development of Vaccines?
- iii. What are the functions of Capsule and inclusion bodies in the bacterial cell?
- iv. Calculate the Generation time of a bacterial population that increases from 10^3 cells to 10^7 cells in 4 Hours of growth?
- v. What is LD50? If Strain A of a bacteria has LD50 of 20 Units whereas Strain B of the bacteria has LD50 of 40 units, Which strain is more virulent and why?
- vi. Define virulent factors. Name four different virulent factors present in the bacteria?
- vii. What is the mechanism of action of Penicillin?
- viii. What are broad and narrow spectrum antibiotics? Give one example in each?

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

- Q 3. Your friend believes that Bacteria are always detrimental and pathogenic. How would you explain to them that they are wrong?

OR

Describe the Domain Classification of Micro-organisms?

Government Degree College, Baramulla (Autonomous)

- Q 4.** Explain the structural details of Bacterial cell wall with the help of a well labelled diagram?

OR

Tabulate the differences between Gram +ve and Gram -ve bacterial cell wall with the help of a diagram?

- Q 5.** Explain the life-cycle of HIV virus with the help of a diagram?

OR

Explain the general structure of Enveloped viruses and non-enveloped viruses with the help of a diagram?

- Q6.** Describe the types of antiviral drugs with one example in each?

OR

What is the mechanism of action of Antimetabolites and Protein synthesis inhibitors as antibacterial agents?

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

- Q7.** What is one gene one enzyme hypothesis? Explain it using Beadle and Tatum experiment?
- Q8.** Define Exotoxins. Describe its various types in detail?
- Q9.** What is the Pathogenesis of Pulmonary Tuberculosis? How is TB disease treated?
- Q10.** What is Drug Resistance? Describe various mechanisms of Drug Resistance present in Bacteria.