

**Instructions: 1) All Questions in Section I and Section II are compulsory and carry equal marks.**

**2) Illustrate your answers with neat diagrams wherever necessary,**

**Q1. (A)** Discuss location, size, functions and economic importance of Bacterial capsule. (08)  
**(B)** Write a note on Mycoplasma. (06)

**OR**

**Q1. (A)** Explain with a diagram the process of Bacterial Sporulation. (07)  
**(B)** Explain with a diagram the structure of Gram-negative Bacterial cell wall. (07)

**Q2. (A)** Write a note on the principle, procedure and result of Metachromatic granule staining (06)  
**(B)** Define with examples: 1. Acidic stain 2. Chemical fixation 3. Intensifier 4. Dyes as pH indicator (08)

**OR**

**Q2. (A)** Define with examples: 1. Heat fixation 2. Compound stain 3. Amphoteric stain 4. Leuco compounds (08)  
**(B)** Explain the role of microorganisms in human welfare (06)

**Q3. (A)** Write a note on: 1) Lactose Intolerance 2) Nitrogen Balance (10)  
**(B)** Discuss briefly the importance of Lipids in our diets. (04)

**OR**

**Q3. (A)** Briefly explain: 1) Complete and Incomplete Proteins 2) Dental Caries (08)  
**(B)** Write a note on PUFA. (06)

**Q4. (A)** What is BMR? Discuss the factors affecting BMR. (08)  
**(B)** Discuss the nutritional value of Cereals. (06)

**OR**

**Q4. (A)** Discuss the nutritional Value of 1) Vegetables 2) Meat (09)  
**(B)** Briefly explain RQ and SDA (05)

**Q5. Attempt any Seven out of the following: (14)**

1. Give any two important shapes and arrangement of morphology found in bacteria.
2. List two important features of Archaebacteria.
3. Give any two functions of Peptidoglycan.
4. Define smear and give its importance.
5. What is the principle behind Acid fast staining?
6. Define Mordant and list the types of mordant.
7. What is Dietary Fibre? Write any two rich dietary sources of it.
8. Define supplementary value of Proteins giving examples.
9. What are Trans fats? Name any one food which is rich in it.
10. Define RDA and write the RDA for Proteins.
11. What is Energy Balance? Define the unit of energy
12. Write the Energy value and Protein content of 100 ml of Milk.

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