



- Q.2 Answer/attempt **any seven** from the following: (14 marks)
- What is two-partner protein secretion system?
  - Write in brief on ABC transporter.
  - What is the function and composition of spore coat?
  - Write in brief about significance of siderophore production.
  - Define: Symbiosis and Commensalism.
  - Differentiate between Bacteriocin and Antibiotic.
  - What are the characteristics of microbial reserve compounds?
  - Enlist the microorganisms used in MFC.
  - Write a brief note on phosphate assimilation in *E. coli*.
- Q.3 A. Explain the molecular mechanism of chemotaxis in detail. (06 marks)  
 B. Explain Peptidoglycan biosynthesis. (06 marks)
- OR**
- B. Describe the general mechanism of insertion of integral membrane proteins and export of periplamic proteins. (06 marks)
- Q.4 A. Describe the physiological events leading to *E. coli* cell division. (06 marks)  
 B. Discuss in detail on EnvZ/OmpR two-component system. (06 marks)
- OR**
- B. Explain the yeast cell cycle regulation in detail. (06 marks)
- Q.5 A. Discuss in detail on protein synthesis inhibiting antibiotics. (06 marks)  
 B. Discuss the steps of biofilm formation and its control strategy. (06 marks)
- OR**
- B. Write a note on biochemistry of bioluminescence. (06 marks)
- Q.6 A. Describe in detail on A-B toxin with suitable example. (06 marks)  
 B. Discuss quorum sensing mechanism in Gram-negative bacteria with one suitable example. (06 marks)
- OR**
- B. Write a note on Microbial hydrogen production. (06 marks)

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 (2)

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