



Department of Biosciences and Bioengineering  
Indian Institute of Technology Guwahati  
Guwahati 781039 Assam, India

Course: BT-206 Microbiology (Quiz)

Date: 17/02/2024

Total marks-20

Total time: 60 mins

Q1. Why the major ingredient of bacterial spores is used to make non-leachable food grade plastics? Justify your statement to the **POINT** in the context of compound? (2 Marks)

Q2. Considering the spontaneous generation theory to be correct. Design an experiment to prove it for anaerobic gram positive bacteria? (2 Marks)

Q3. Some of the aquatic bacterial species comes to the surface during the day time and go deep in the evening? How and why they do it? (2 Marks)

Q4. While making a polysaccharide vaccine against cholera scientist faced a problem. While taking the absorbance of the bacteria they got different results when incubated at two different temperatures? Explain the phenomenon in context of cell biology? (2 Mark)

Q5. A scientist was visualizing the photosynthetic purple bacteria under the microscope using a dye **X**, he observed a black spot inside the cytoplasm of bacteria which he said **Y**, the compound **Y** is considered rich in compound **Z**. Identify the **X**, **Y** and **Z**? (2 Marks)

Q6. Given that iron is symported along with glucose in a bacterial cell? Predict the biology of the phenomenon in context of bacterial metabolism **ONLY**? (2 Mark)

Q7. Starting with 10 bacterial clones a student grows it for 10 rounds in as nutrient media? He transferred half of the clones at the end to a selective media which allowed the growth of only 5 unique colonies. Calculate the % efficiency of the selective media (2 Marks)

Q8. How carbenicillin is different than methicillin? Some bacterial species got resistance against methicillin, predict the two possible molecular mechanisms? (2 Marks)

Q9. A newly isolated *E. coli* showed two morphovars in their culture? Draw the bacterial growth curve for both of the morphovars and predict how and why they are different? (2 Marks)

Q10. Scientist make a mutant form of bacteria that lacks the Braun's protein in its cell wall? Predict the **EXACT** odd behavior with **REASON** of cell wall they might have observed while making that mutant? (2 Marks)