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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST 2 EXAMINATION - OCTOBER 2018
B.Tech Semester (3rd)

COURSE CODE: 10 B11BT313   MAX. MARKS: 25

COURSE NAME: Microbiology

COURSE CREDITS: 04   MAX. TIME: 1.5 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated against each question.

Q1: a) Describe the process of anaerobic microbial respiration. Why is it more efficient than fermentation?

b) A student inoculated a culture with 06 *S. aureus* cells. If *S. aureus* has a generation time of 60 min., how many cells would be in the culture after 7 hours?

CO2   [3+2]

Q2: a) Explain the methods of short term and long term preservation of bacteria and fungi.

b) Draw the following growth curve for pseudomonas starting with 20 cells with a generation time of 30 min. at 37 ^{0}C.

i) The cells are incubated for 3 hours at 37 ^{0}C and after 3 hours the temperature is changed to 4^{0}C.

CO3   [3+2]

Q3: a) Why might it be desirable for a microorganism with the Embden-Meyerhof Pathway and the TCA cycle also to have Pentose Phosphate Pathway?

b) Of what advantage would it be to a microorganism to possess an electron transport chain and oxidative phosphorylation?   CO4   [3+2]

Q4: a) Describe the prevailing model for the mechanisms of ATP synthesis in bacteria.

b) What are the various advantages and disadvantages of following methods for measuring bacterial growth?

a) Membrane filter   b) Plate count   c) Turbidimetric measurement   CO1   [3+2]

Q5: a) Give three examples of selective mechanisms occurring in nature that lead to predominance of particular kind of bacteria?

b) Explain the diauxic growth of bacteria with the help of an example.   CO3   [3+2]