বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2021

(Under CBCS Pattern)

Semester - III

Subject : MICROBIOLOGY

Paper : C 5 T & P

(Microbial Physiology and Metabolism)

Full Marks : 60 (Theory : 40 + Practical : 20)

Time : 3 Hours

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

(Theory)

Group - A

A. Answer any ***three*** of the following questions : 12×3=36

1. Explain the techniques in measurement of microbial growth with diagrammatic representation. 12

2. Differentiate between (a) Batch culture and continuous culture, (b) Uniport and antiport, (c) Passive and facilitated diffusion (d) Ammonification and nitrification. 3+2+4+3

3. State the procedure of nutrient uptake and transportation through plasma membrane. 12

4. Discuss the TCA cycle with a diagram. 8+4

5. Describe the process of carbon fixation in Cyanobacteria. Describe the structure of heterocyst. 7+5

6. Describe the procedure of biological nitrogen fixation by Rhizobium sp. Give example of 2 mico-organisms involved in denitrification process. Give an example of free living nitrogen fixing bacteria. 9+2+1

Group - B

B. Answer any ***two*** of the following questions : 2×2=4

7. What is diauxic growth curve? 2

8. What is EMP pathway? 2

9. What is leghaemoglobin? 2

10. What is the function of nif gene? 2

(Practical)

Paper - C 5 P

(Microbial Physiology and Metabolism)

Marks : 20

Group - A

A. Answer any ***one*** of the followng questions : 15×1=15

1. Describe the principle and procedure of the study of growth curve of E. coli. 8+7

2. Describe the procedure of the study of the effect of temperature and pH on the growth curve of E. coli. 8+7

3. Describe the principle, requirement and procedure of determination of thermal death point of E. coli. 5+5+5

Group - B

B. Answer any ***one*** of the followng questions : 5×1=5

4. What is generation time? How do you calculate the specific growth rate of bacteria? 2+3

5. How do you study the effect of salt on the growth of E. coli. 5

6. Submission of laboratory notebook and viva-voce 2+3
