2019

B.Sc.

3rd Semester Examination

MICROBIOLOGY (Honours)

Paper - C 5-T

Full Marks : 40　　　　　　　　　Time : 2 Hours

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

1. Answer any *five* questions :　　　　　2×5=10

   (a) What are bacteroids ?　　　　　　　　2

   (b) How does nitrogen fixing root nodule bacteria
   protect nitrogenase from oxygen ?　　　2

   (c) Distinguish between batch culture and Continuous
   culture.　　　　　　　　　　　　　2

   (d) What is specific growth rate ?　　　　2

   (e) What function do trace elements serve in cell. 2

[Turn Over]

(f) What are the factors that permit the archaeobacteria to grow at extreme temperature. 2

(g) Write the effect of cyanide on ETC. 2

(h) Write the effect of iodoacetamide on glycolysis. 2

2. Answer any *four* questions : 5×4=20

(a) Describe how 'nif' gene is regulated. Define ionophores. Give example of halophilic bacteria. 2+2+1=5

(b) Describe how change in pH gradient in mitochondria helps in ATP generation ?

Mention the steps of TCA cycle where ATP can be generated. 3+2=5

(c) Discuss the different purification and preservation processes of microorganism. 2½+2½=5

(d) Why is respiration more efficient than fermentation in extracting the chemical energy of glucose.

What force drives the rotatory motor at the base of a bacterial flagellum ? 3+2=5

(e) Describe the steps of ED pathway. What do you mean by diauxic growth curve ?　　3+2=5

(f) Write the principal bye product and importance of pentose phosphate pathway.　　5

3. Answer any *one* question :　　10×1=10

(a) Explore the bacterial sporulation process with a suitable diagram.　　5+5=10

(b) What series of reactions make up the nitrogen cycle ? Schematically represent the nitrogen cycle and discuss the roles of microorganism in completing nitrogen cycle.　　2+4+4=10