

2018

CBCS

3rd Semester

MICROBIOLOGY

PAPER—C5T

(Honours)

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Microbial Physiology & Metabolism

1. Answer any five questions :

5×2

(a) What is biofilm ?

(b) What do you mean by cardinal temperature ?

(c) Describe the effect of alteration of pH on microbial growth.

(Turn Over)

- (d) Give examples of two nitrifying and denitrifying bacteria.
- (e) Write the working principle of turbidostat.
- (f) Describe the factors that impart thermostability of bacteria.
- (g) Explain why all *Rhizobium* sp. cannot form nodule in all leguminous plants.
- (h) What do you mean by homo fermentative and heterofermentative *Lactobacillus* strain?

2. Answer any *four* questions :

4×5

- (a) Describe how chemostat can be used to regulate growth rate of bacteria.

Write the industrial importance of growth curve of bacteria.

3+2

- (b) Define thermophilic bacteria with example. Write their importance in food microbiology. What is the significance of non-oxidative phase of pentose phosphate pathway?

1½+1½+2

- (c) How bacteria can overcome the toxic effect of oxygen ?

Write the role of enzyme during alcohol production process.

Give example of one alcohol producing bacteria.

3+1+1

- (d) Describe how ammonia nitrogen incorporated in microbial cells.

What do you mean by symport and antiport ? 3+2

- (e) Describe the basic structure of nitrogenase. Write their role in biological nitrogen fixation.

2½+2½

- (f) Describe the structure of pyruvate dehydrogen complex.

Write the role of thermogenin in survival of polar bears.

3+2

3. Answer any *one* question :

1×10

- (a) Briefly describe how TCA cycle is regulated. Write short note on :

(i) Entner Doudoroff pathway.

(ii) Group translocation

Define 'VBNC'.

4+2½+2½+1

(b) Write short note on chemiosmotic hypothesis.

Write the role of 2, 4-dinitrophenol on ETC.

Write the name of main rate limiting enzyme of glycolysis and describe how it is regulated.

Describe the anabolic roles of TCA cycle.

2½+2+1+2+2½
