

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. (D.T.) Degree Course 2017-18

Semester	: IV (V Dean)	Academic Year	: 2017-2018
Course No.	: DM-403	Course Title	: Starter Cultures and Fermented Milk Products
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Monday, 11.06.2018	Time	: 15.00 to 17.00 Hrs.

- Note :** 1) All questions from **Section 'A'** are compulsory.
2) Solve **Any Three** questions from **Section 'B'**.
3) Draw neat and well labelled diagram wherever necessary.

SECTION - 'A'

Q. 1 A) Choose the most appropriate answer from the options given below. (05)

- i) Generally lactic acid bacteria are considered as
 - a) Non-pigmented
 - b) Obligate spore former
 - c) Gram positive bacteria
 - d) Gram negative bacteria
- ii) Activity of starter cultures can be evaluated by
 - a) Catalase test
 - b) Oxidase test
 - c) Horrel Elliker's test
 - d) Gram stain
- iii) 'Abi' is genetic method of controlling bacteriophage refers to
 - a) Antibacterial inhibition
 - b) Antibiotic infection
 - c) Abortive infection
 - d) Antibiotic inhibition
- iv) The major source for the microbial rennet is
 - a) *Aspergillus flavus*
 - b) *Mucor meiheii*
 - c) *Rhizopus stolonifer*
 - d) *Penicillium notatum*
- v) The enzyme involved in hydrolysis of lactose to glucose and galactose is
 - a) Lactate dehydrogenase
 - b) Phospho β -galactosidase
 - c) β -galactosidase
 - d) β -Glucokinase

B) Define the following. (05)

- i) Starter cultures
- ii) Starter concentrates
- iii) Probiotics
- iv) Bacteriophages
- v) Accelerated cheese ripening

Q. 2 A) Give scientific reasons for the following. (05)

- i) Yoghurt is rich in galactose.
- ii) Milk is not incubated anaerobically after inoculation with starter bacteria.
- iii) Doctors suggest consumption of fermented milk products to patients with lactose intolerance rather than milk.
- iv) Maximum fat will not be utilized by starter cultures in *dahi*.
- v) After incubation the fermented milk products are stored under refrigeration conditions.

(P.T.O.)

B) Do as directed.

(05)

- i) Who is named as father of fermented milk products?
- ii) List the starter cultures used in preparation of *kefir*.
- iii) What is the amount of energy generated in homofermentation?
- iv) Give the protocol for propagation of starter cultures.
- v) Name the commercially available probiotic milk product.

SECTION –‘B’

- Q. 3 a) Discuss in detail general characteristics of dairy starter cultures. (05)
b) Explain the lytic cycle of bacteriophages. (05)
- Q. 4 a) Describe the characteristics of a culture if it is said to be a probiotic. (05)
b) Enlist in detail factors affecting growth of starter culture and explain any two factors in detail. (05)
- Q. 5 a) Explain the pathway involved in acetaldehyde production in yoghurt. (03)
b) Schematically explain the proteolytic system of lactic acid bacteria. (03)
c) Explain in details the role of fermented milks. (04)
- Q. 6 a) Write citrate utilization pathway of *Leuconostoc* spp. (03)
b) Explain Tagatose pathway of galactose utilization. (03)
c) Differentiate between *kefir* and *kumiss* (04)
- Q. 7 Discuss in detail symbiotic growth in yoghurt cultures and discuss the therapeutic significance of yoghurt. (10)
