

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. Dairy Technology 2018-19

Semester	: IV (V Dean)	Academic Year	: 2018-2019
Course No.	: DT- 405	Course Title	: Cheese Technology
Credits	: 3+2=5	Total Marks	: 50
Day & Date	: Monday, 24.06.2019	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) Starter culture used for manufacturing of Emmental cheese is
 - a) *Lactococcus lactis subsp*
 - b) *Lactococcus lactis subsp cremoris lactis*
 - c) *Leconostoc mesenteroids*
 - d) *Propionobacterium Shermnii subsp cremoris*
- ii) Objects of salt addition in cheese is not for
 - a) To motivate microbial growth
 - b) To impart an appetizing taste
 - c) To suppress microbial growth
 - d) To assist the physico-chemical changes in the curd
- iii) Cheese ripening is essentially a process which involves metabolism of constituents of milk.
 - a) Lactose
 - b) Fat
 - c) Protein
 - d) None of These
- iv) The bacterial species imparts distinctive, reddish orange color to the rind of Brick and Limburger cheese.
 - a) *P. freudenreichii subsp.*
 - b) *Brevibacterium linens shermanii*
 - c) *S. faecium*
 - d) None of these
- v) Natural inhibitory substances found in milk
 - a) Lactoferrin
 - b) Lactoperoxidase
 - c) Lysozyme
 - d) All of these

B) Give two examples for the followings. (05)

- i) Very hard cheese
- ii) Inhibitory salt
- iii) Test for detection of antibiotic residues
- iv) Food Additives
- v) Acidulant

Q.2 A) Do as directed. (05)

- i) Cheese milk is heated. (Give reason)
- ii) What are the problems of plant sources clotting enzymes in cheese making?
- iii) Write the external factors affected on rennet coagulation.
- iv) Colored spots may be formed by the growth of pigmented *Propionibacterium shermnii* in (Fill the blank)
- v) CaCl_2 is added in cheese milk. (Give reason)

(P.T.O.)

- B) State whether True or False. If false, rewrite the statement after making necessary corrections in underlined word. (05)
- i) Standardization of cheese is normally carried out to casein/fat ratio of 2:1.
 - ii) Cheese which is ready for consumption shortly after manufacturing called as ripened chesses.
 - iii) Buffalo milk is considered suitable raw material for making certain ripened cheese varieties such as Cheddar, Gouda, Emmental, etc.
 - iv) The cheese with insufficient acidity may also show the effects of controlled fermentations of gas producing yeasts or bacteria.
 - v) Excessive moisture in cheese cause weak or soft when fresh, and sticky and pasty when aged.

SECTION – 'B'

- Q.3 A) Define the term cheese according to FSSR (2011). Discuss the method for preparation of Mozzarella cheese. (05)
- B) Discuss the Mechanization and automation in cheese industry. (05)
- Q. 4. A) Describe "various rennet substitutes". (05)
- B) Explain in details manufacturing steps of Cottage cheese. (05)
- Q. 5 Do as directed.
- A) Desirable properties of rennet. (05)
- B) Various pre-treatment given to milk for manufacturing of cheese. (05)
- Q. 6 Do as directed
- A) Discuss the factors affecting cheese yield. (03)
- B) Physico-chemical changes during the ripening of cheese. (03)
- C) Explain in brief defects in cheese, their causes and prevention. (04)
- Q. 7 State the composition of Cheddar cheese made from cow and buffalo milk. Explain in details manufacturing procedure of Swiss cheese. State the mechanism of Eye Formation. (10)
