KATHMANDU UNIVERSITY
End Semester Examination
January/February, 2025

Marks Scored:

Level : B.Tech.
Year : IV

Course : BIOT 416
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"

[20 Q. × 0.75 = 15 marks]

Choose and mark [X] in the most appropriate option from each set of choices

1. The pH of milk is
   [ ] 6.5-6.7 [ ] 5.6- 5.9 [ ] 7.7 – 7.9 [ ] 6.9-7.4

2. The enzyme used to determine the adequacy of milk pasteurization is
   [ ] Phosphatase [ ] Catalase [ ] Peroxidase [ ] Amylase

3. Minimum fruit content in sugar concentrate (Marmalade) product is
   [ ] 65% [ ] 70% [ ] 45% [ ] 55%

4. Mycotoxin in cereal grain entirely depends on
   [ ] Moisture content [ ] Temperature [ ] water Activity [ ] Pressure

5. Wheat protein is often called as
   [ ] Avidin [ ] Gluten [ ] Casein [ ] Zein

6. Which enzyme is taken as indicator of testing the adequacy of Pasteurization
   [ ] Catalase [ ] Phosphatase [ ] Amylase [ ] Peptidase

7. Which of the following group of microorganism require the least water activity?
   [ ] Osmophillic yeast [ ] Xerophillic mold
   [ ] Bacteria [ ] Virus

8. Which mold infection is related to ergotism
   [ ] Bacillus subtilis [ ] Fusarium
   [ ] Claviceps purpurea [ ] Torula

9. Use of Food Additives are
   [ ] Desirable [ ] Partially desirable
   [ ] Semi desirable [ ] Highly toxic

10. Which consists of more fiber
    [ ] Milk [ ] Fruit [ ] Cereal [ ] Meat

11. Pleasant flavor of dairy fat is due to
    [ ] Lactic acid [ ] Butyric acid
    [ ] Hydrochloric acid [ ] Acetic acid

12. One gram Protein yields
    [ ] 7 Kcal [ ] 9 Kcal [ ] 4 Kcal [ ] 4.2 Joule

13. *"Saurkraut"* fermentation is carried out by
[ ] Yeast [ ] Mold
[ ] Lactic acid Bacteria [ ] Yeast and molds

14. Hurdle technology aims to
[ ] Transportation [ ] Storage [ ] Cleaning [ ] food safety

15. Beer fermentation carried out with the help of
[ ] *Saccharomyces cerevisiae* [ ] *Lactobacillus bulgaricus*
[ ] Streptococcus thermophillus [ ] Befidobacterium

16. Safe dose of food color during food processing
[ ] 550 ppm [ ] 250 ppm [ ] 100 ppm [ ] 200 ppm

17. Minimum a_w require by most of the yeast is
[ ] 0.7 [ ] 0.75 [ ] 0.85 [ ] 0.95

18. Most yeast cells inhibit in the range of Alcohol about
[ ] 12 to 15 % [ ] 10 to 12 % [ ] 15 to 158 % [ ] 8 to 10 %

19. Butter is stored at
[ ] -8^0C [ ] 8^0C [ ] -18^0C [ ] 28^0C

20. Moisture in Fresh milk is
[ ] 70% [ ] 60% [ ] 50% [ ] 90%

SECTION "B"
[10 Q. × 0.5 = 5 marks]

Fill in the blanks with the appropriate answer

21. Yoghurt from milk is a _____ process.

22. Mustard oil is a Class _____ Preservative.

23. Class I type preservative is also known as _____ preservative.

24. Safe level of radiation in food preservation is _____ KGY.

25. Principle Sugar in milk is _____.

26. The cold point of solid food inside metal can is at _____.(bottom/ center)

27. High intensity pulsed electric field (PEF) processing involves the application of pulses of high voltage, typically _____ kV/cm.

28. Process of inhibiting pathogens from milk at certain time and temperature is called_____.

29. Which one is a micronutrient_____. (Carbohydrate/Calcium/Casein/Carbon)

30. Nitrate is used to preserve _____. (Juice/Meat/Vegetable)

KATHMANDU UNIVERSITY
End Semester Examination
January/February, 2025

Level : B.Tech.
Year : IV
Time : 2 hrs. 30mins.

04 FEB 2025

Course : BIOT 416
Semester : I
F. M. : 55

SECTION "C"
[11 Q. × 5 = 55 marks]

Attempt ANY ELEVEN questions. Give short and relevant answers. Students are required to give their answer in their own words.

1. Write down the basic principles of high intensity pulsed electric fields (PEF) method of food preservation. [5]

2. Define food and its importance to mankind. [2+3=5]

3. Explain the different methods of food preservation. [5]

4. Classify food from the perspective of functional properties. What are natural and chemical preservatives? [2+3=5]

5. List out the basic post harvest operation. How do you minimize post harvest loss of fruits and vegetable? [2+3=5]

6. Define pasteurization. What could be the reason of black color formation in metal can containing food? [1+4=5]

7. Distinguish wet and dry cleaning [5]

8. What do you understand by Aseptic processing? Find D value at 115°C for *Clostridium botulinum* (z value = 10°C) when D value at 121 °C is 0.2 min? [5]

9. Define lacquering. What can be the reason of black colour formation in metal can containing food? [1+4=5]

10. Pear cubes of 6cm dimension are individually quick frozen in a blast freezer operating at (-45°C) with a surface heat transfer coefficient of 30 W^{m-2K-1}. If the freezing point of the pear is measured as (-0.5°C) and the density is 1180 kg^{m-3}, Calculate the expected freezing time for each cube. (Given, thermal conductivity of pear is 2.5 W^{m-1k-1} and latent heat of crystallization = 2.74 J/kg) [5]

11. What are the intelligent combinations of barriers? Write down its importance [2+3=5]

12. Explain the mechanism of food radiation. [5]

13. What do you understand by the indigenous food? List out common indigenous food avail in *Terai, Hill and Mountain* region. [2+3=5]