

Roll No. _____

M.Tech. Food Technology
Semester I Examination 2023
Course Code: MFTC-101
Course Title: Food Chemistry & Microbiology

2023 ✓
18/5/23

Time: 3 hours

Max Marks: 75

Attempt all the questions. Marks are mentioned against each question

- Q1. Briefly answer the following (1x15)
- (a) How can we differentiate between motile and non-motile organisms?
 - (b) What are Prions?
 - (c) Mention staining agent required during Endospore staining.
 - (d) Expand ISO and GRAS
 - (e) Enlist food sources rich in Magnesium and Calcium.
 - (f) What is putrefaction?
 - (g) List examples of semi-perishable food products.
 - (h) Naringenin is found in _____.
 - (i) Fermented cabbage is known as _____.
 - (j) AH-B theory was given by _____.
 - (k) Examples of Umami flavour compounds are _____.
 - (l) The compound that contributes to bitterness in citrus fruits is _____.
 - (m) The process of addition of nutrients back to the formulation that were lost during food processing is called _____.
 - (n) _____ compound is generally responsible for cooling sensation in foods.
 - (o) Predominant volatile component found in gingers is _____.
- Q2. Answer any three of the following (5x3)
- (a) Differentiate between exotoxins and endotoxins.
 - (b) Discuss the preservation aspects of dairy commodities.
 - (c) Give an account of the applications of enzymes used in bakery industry.
 - (d) Explain the correlation between water activity of foods and vapour pressure?
 - (e) Mention the toxicological relevance of aflatoxin and ochratoxin found in foods.
- Q3. Answer any three of the following: (5X3)
- (a) Illustrate a bacterial growth curve and discuss various phases.
 - (b) Discuss the morphological, cultural and physiological requirements of Mold species, relevant in foods.
 - (c) Discuss the complete microbiology involved in the production of any fermented cereal based product with associated defects.
 - (d) Differentiate between probiotics and prebiotics in a tabular form.
 - (e) Mention and discuss chemical changes (Use a flowchart) that myoglobin undergoes during curing.
- Q4. Answer any three of the following (5x3)

- (a) Elucidate the chemistry behind formation of flavour volatiles in *Allium species* during thermal processing.
- (b) Define and give two examples each: Coliforms, halophiles
- (c) Explain the chemistry of distinctive flavours obtained from long-chain polyunsaturated fatty acids during cooking and storage.
- (d) Mention the biological role and functions, food sources, deficiency symptoms, RDA and degradation aspects of Vitamin C in foods.
- (e) Explain polyacrylamide formation in foods..

Q5. Answer any three of the following

(5x3)

- (a) Classify lipids on the basis of their function, structure and solubility.
 - (b) Explain non-enzymatic browning in detail.
 - (c) Discuss the structural classification of proteins and the significance of denaturation of proteins in foods.
 - (d) Explain lipid peroxidation mechanism in foods.
 - (e) Define: Gelatinization, Retrogradation, Flavor reversion, Emulsification, Caramelization
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