

2024

MICROBIOLOGY — HONOURS

Paper : SEC-1

(Food Fermentation Techniques and Packaging)

Full Marks : 100

*The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.*

Group - A

1. Answer *any ten* questions :

2×10

- (a) What is HACCP?
- ✓(b) Name two probiotic foods available in the market.
- ✓(c) What is swiss cheese?
- ✓(d) What is moromi in soy sauce fermentation?
- ✓(e) State the health benefits of fermented foods.
- ✓(f) Name one fish fermented and one meat fermented product.
- (g) How are soybeans pre-treated for soy sauce fermentation?
- (h) What is the main organism used in tempeh production?
- (i) How does salt concentration affect sauerkraut fermentation?
- ✓(j) State the nutritional role of fermented fish products.
- ✓(k) What are prebiotics?
- (l) Name two spoilages of sauerkraut.
- ✓(m) What is gluten free bread?
- ✓(n) What is kimchi?
- ✓(o) What causes ropiness of milk?

Group - B

2. Answer *any ten* questions :

- ✓(a) Give a flow diagram for soy sauce production.
- ✓(b) Discuss the role of lactic acid bacteria (LAB) for meat fermentation?
- (c) Name the causative organism of yellow milk and red milk respectively.

1½+1

Please Turn Over

(12)

- ✓ (d) How do fermented foods boost the immune system? 3
- ✓ (e) Discuss on koji fermentation. 3
- (f) Discuss on the industrial production of cheese. 3
- ✓ (g) State the nutritional benefits of yoghurt. 3
- ✓ (h) State the underlying principle behind leavening of bread. 3
- ✓ (i) What are the benefits of consuming acidophilus milk? 3
- (j) What is FASSI? State its importance. 1+2
- ✓ (k) How do starter cultures influence the initial stages and sometimes the whole process of fermentation. Explain with suitable examples. 3
- (l) Write down the production of fermented sausage in flowchart. 3
- ✓ (m) Discuss on the health benefits of kefir. 3
- (n) What are the importance of water in bread making process? 3
- ✓ (o) What is CCP? Discuss its importance. 1+2

Group - C

3. Answer any ten questions :

- ✓ (a) Briefly discuss the method of tempeh production. 5
- ✓ (b) What is the optimum salt concentration used in sauerkraut fermentation? What are early brine and late brine in this fermentation? 1+2+2
- ✓ (c) Name two bacteria used in pickle production. What are the chemical changes during sauerkraut fermentation? 2+3
- ✓ (d) Write short notes on fish pastes and fish sauces. 2½+2½
- (e) Discuss on the production of semi-dry and dry sausages. 5
- (f) Classify fermented foods. State the role of heterofermentative bacteria in different fermented food production. 2+3
- (g) Write down the production process of dahi. What are its health benefits? 3+2
- (h) Which probiotic strains are linked with improvement of mental health? What are the safety concerns and side effects of some fermented foods. Explain with suitable examples. 2+3
- ✓ (i) Write down the importance of gluten in the production of bread. Briefly describe the importance of aluminium as a food packaging material. 2½+2½
- ✓ (j) Discuss on the changes taking place during idli fermentation. State the importance of idli. 3+2
- ✓ (k) What is Pasteurization? State the importance of ISI mark. What are food hazards during Hazard Analysis in HACCP? 2+1+2

- ✓ (d) Are all fermented foods considered to be probiotic foods? — Explain. Give two examples of Prebiotics. What is BSI? 2+2+1
- ✓ (e) Discuss different approaches for controlling microbial activity in food processing industry. Why spices are added in many fermentation process? 3+2
- ✓ (f) Name one hard cheese and one soft cheese. Write the nutritive and therapeutic advantages of kumis. 2+(1½+1½)
- (g) What are lactic acid bacteria? Describe the different functions of packaging. 2+3
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