Questions for the Bachelor's Degree Exam in Food Science - Technology and Nutrition, from the 2026/2027 academic year

Questions from introductory subjects

1. Analyze a selected element of the food system (e.g., meat production, food waste) and indicate which UN SDGs are linked to it. Explain the mechanisms of these links.
2. Assess one global problem of an unsustainable food system and propose a realistic strategy to mitigate it (taking into account implementation barriers).
3. Compare the structure and properties of proteins and carbohydrates using specific compounds and explain how their structure influences their technological function in food.
4. Design a fat modification process for a specific food product (e.g., margarine or confectionery) and assess its health and technological consequences.
5. Analyze the Maillard reaction in a selected product (e.g., bread, coffee) and assess its impact on food quality and safety.
6. Interpret the process of oxidative rancidity in a given fat product and propose methods to reduce it during production and storage.
7. Compare prokaryotic and eukaryotic organisms in terms of their importance in the food industry (both positive and negative).
8. Assess the suitability of a selected plant raw material in selected food production processes, considering its composition and technological properties.
9. Compare two animal-derived raw materials and assess their potential use in selected food processing processes.
10. Analyze the impact of environmental factors (e.g., pH, AW, temperature) on the growth of microorganisms in a specific food product.
11. Identify potential sources of microbiological contamination in a selected production process and propose preventive measures.
12. Characterize a selected branch of the food industry by analyzing its raw materials and justify their technological selection.
13. Propose a product portfolio for a selected food industry and justify it from a market and technological perspective.
14. Assess the diet of an example person in terms of macronutrient intake and suggest modifications.
15. Analyze a case of deficiency or excess of a selected mineral or vitamin and propose a dietary intervention.
16. Explain the process of digestion and absorption, and then analyze these processes using a selected macronutrient (protein, fat, carbohydrate) as an example.
17. Analyze the role of the nervous system in regulating motor and secretory activity, using the enteric nervous system as an example.
18. Compare the functions of different types of muscles and analyze their impact on regulating body functions, providing relevant examples.
19. Select the appropriate temperature measurement method for a specific technological process and justify your choice.
20. Design a mixing process for a selected food product and justify the selection of equipment.
21. Select a chromatographic method for analyzing a specific food ingredient and justify its advantages.
22. Compare thermal analysis methods and indicate their application in a specific research problem.
23. Interpret the results of spectroscopic analyses (IR/NMR/UV) for a selected food compound.
24. Select tools for assessing dietary intake for a specific population group and justify your choice.
25. Compare body composition assessment methods and assess their usefulness in various clinical situations.
26. Identify a nutritional problem in a selected population and propose an intervention program.
27. Design a sensory study for a new product (selection of methods, panel, and analysis of results).
28. Assess the factors influencing the reliability of sensory analysis and propose ways to control them.
29. Analyze the influence of cultural factors on dietary choices in a specific case.
30. Apply the Total Food Quality Model to analyze the consumer's food product selection process.

Questions from Core Subjects

1. Select the appropriate preservation method for a selected food product and justify your choice in terms of quality, shelf life, and safety.
2. Analyze the production process of a selected food product in terms of mechanical, diffusion, and thermal operations – indicate their role and impact on final quality.
3. Design a technology for producing a food concentrate (e.g., meal concentrate/powdered soup, instant coffee) and justify the selection of key unit operations.
4. Compare the production technologies of two plant products (e.g., juice vs. puree, bread vs pasta) and assess their impact on nutritional value and sensory characteristics.
5. Analyze the heat transfer mechanisms in the selected technological process and suggest ways to increase its efficiency.
6. Select a drying method for a specific food product and assess its impact on the product's structure, nutritional value, and shelf life.
7. Analyze the factors affecting milk quality in the production chain and propose actions to improve its hygiene quality.
8. Diagnose the causes of a selected meat defect (e.g., PSE, DFD) and propose preventive measures in production.
9. Compare the nutritional and technological value of various animal raw materials (e.g., meat vs eggs vs. milk) in the context of their industrial use.
10. Assess the suitability of selected vegetables (cruciferous, nightshade) for various processing methods, considering their composition and health-promoting properties.
11. Determine the requirements for microorganisms used in a specific biotechnological process and justify their technological significance.
12. Analyze the production process of a selected biotechnological product and identify the critical steps affecting quality.
13. Identify factors limiting the efficiency of the biotechnological process and propose ways to optimize it.
14. Analyze the risks associated with the presence of mold in food and propose methods for prevention and control.
15. Compare selected food-related pathogenic bacteria in terms of sources, risk products, and health effects – propose preventive measures.
16. Design a process for creating a new food product – identify key stages and potential problems at each stage.
17. Select additives for a specific food product and justify their technological function.
18. Assess the impact of culinary processing on food quality using a specific product as an example and propose process optimization.
19. Analyze the culinary processing stages of a selected product and indicate their impact on safety and nutritional value.
20. Assess the safety of the selected packaging material in the context of food contact and propose alternatives.
21. Propose an innovative packaging solution for a specific product and justify its technological and marketing advantages.
22. Propose a dietary plan for a person with a selected diet-related disease and justify the choice of ingredients.
23. Analyze the case of a patient requiring an elimination diet and propose solutions to minimize the risk of deficiencies.
24. Assess the nutrition of women and men of reproductive age and suggest modifications to improve fertility and health.
25. Propose and evaluate the functional layout of a selected catering facility or food industry, indicating its strengths and weaknesses and compliance with hygiene, sanitation, and technological requirements.
26. Propose and justify the division of space for individual departments of a catering facility or food industry for a given production scale. Justify the adopted calculation method, indicating the adopted design assumptions.
27. Identify food safety hazards in a selected production process and propose methods for controlling them.
28. Analyze the role of quality management systems in ensuring food safety using a specific enterprise as an example.
29. Evaluate the application of GMP and GHP principles in a selected food facility and identify possible improvements.
30. Develop a HACCP implementation plan for a specific product or process, identifying critical control points.