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BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Sc.(FND)-Hons-2024

Course Name – Functional Food and Nutraceuticals

Course Code - BFD40107

(Semester IV)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify the correct description about nutraceuticals.
 - a) Supplements that are purely synthetic
 - b) Medicinal foods providing health benefits
 - c) Drugs designed to treat chronic illnesses
 - d) Ordinary snacks with no health value
- (ii) Classify probiotic as-
 - a) Precursor nutrients
 - b) Beneficial bacteria
 - c) Antioxidants
 - d) Zoochemicals
- (iii) Recall the example of a fortified functional food
 - a) Whole grain bread
 - b) Milk fortified with vitamin D
 - c) Fresh spinach
 - d) Free-range eggs
- (iv) Choose the correct option that describes phytoestrogens.
 - a) Plant-derived compounds with estrogenic activity
 - b) Proteins derived from animals
 - c) Synthetic estrogen replacements
 - d) Vitamin derivatives
- (v) Identify the major dietary source of isoflavones
 - a) Wheat
 - b) Soybeans
 - c) Apples
 - d) Milk
- (vi) Identify the most common source of flavanols.
 - a) Cocoa
 - b) Meat
 - c) Fish
 - d) Dairy products
- (vii) Select the main nutrient in spirulina that contributes to its health benefits
 - a) Omega-6 fatty acids
 - b) High-quality protein
 - c) Vitamin C
 - d) Soluble fibre
- (viii) Identify the antioxidant that is present in high levels in Green tea
 - a) Lycopene
 - b) Catechins

- c) Resveratrol
(ix) Select the richest source of omega-3 fatty acids
a) Flaxseeds
c) Almonds
(x) Identify the correct measurement technique for In in-vivo antioxidant activity.
a) Direct chemical reactions in test tubes
c) Simulated enzymatic reactions
(xi) Identify the correct statement about ABTS assay that separates it from the DPPH assay.
a) Uses a water-soluble radical cation
c) Requires UV light for analysis
(xii) Recall the factor that is considered in the CUPRAC assay.
a) Copper(II) reduction
c) Molar absorption coefficient
(xiii) Recall the term used for claims made by manufacturers about the health benefits of a nutraceutical.
a) Drug claim
c) Safety claim
(xiv) Discover a potential toxicity concern related to excessive intake of nutraceuticals.
a) Digestive issues
c) Allergic reactions
(xv) Recognize the primary challenge in regulating nutraceuticals.
a) Their high cost
c) Their lack of demand in the market
d) Lutein
b) Olive oil
d) Chicken
b) Cellular responses in live organisms
d) UV absorption analysis
b) Cannot evaluate hydrophilic antioxidants
d) Measures hydrogen atom transfer only
b) Fluorescence intensity
d) Free radical scavenging
b) Health claim
d) Medical claim
b) Organ damage
d) All of these
b) Their complex composition and health claims
d) Their quick market approval process

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe zoochemicals and identify their sources. (3)
3. Identify the key roles of curcuminoids in disease prevention (3)
4. Describe the concept of prebiotics and its role as functional foods. (3)
5. Determine the risks associated with excessive Vitamin E supplementation and express the toxicity symptoms that may occur. (3)
6. Formulate the potential adverse effects associated with excessive consumption of herbal supplements. (3)

OR

Speculate the main challenges in regulating nutraceuticals globally. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Write down the scope of application of phytoestrogen in developing functional foods. (5)
8. Describe the historical development of nutraceuticals and functional foods. (5)
9. Explain how antioxidant activity varies during different food processing. (5)
10. Distinguish the health benefits of olive oil and its role in a heart-healthy diet. (5)
11. Assess the role of functional foods in enhancing immune competence and managing of obesity and nervous system disorders. (5)
12. Infer the role of international regulations in ensuring the safety of nutraceuticals. (5)

OR

Compose the adverse effects and toxicity of omega-3 fatty acid supplements. (5)