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**BRAINWARE UNIVERSITY****Term End Examination 2025-2026****Programme – M.Sc.(ND)-2025****Course Name – Nutrition Science and Immunology****Course Code - MND20404****(Semester II)**

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Brainware University
 398, Ramkrishnapur Road, Barasat
 Kolkata, West Bengal-700125

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) Immunity present at birth and first line of defense is called
 - a) Acquired
 - b) Innate
 - c) Active
 - d) Passive
- (ii) Which is NOT a feature of acquired immunity?
 - a) Specificity
 - b) Memory
 - c) Immediate response
 - d) Diversity
- (iii) Define immunity in the context of host defence.
 - a) Host defense against pathogens
 - b) Hormonal regulation
 - c) Muscle metabolism
 - d) Enzyme digestion
- (iv) Identify the primary site of immune cell development.
 - a) Bone marrow
 - b) Liver
 - c) Stomach
 - d) Kidney
- (v) Explain how undernutrition affects immunity.
 - a) Reduces T-cell function & antibody levels
 - b) Enhances leukocyte function
 - c) Induces strong inflammation
 - d) Enhances complement
- (vi) Discuss relationship between infection & nutrition.
 - a) Bidirectional
 - b) Unidirectional
 - c) Neutral
 - d) Random
- (vii) A nutraceutical is best defined as a
 - a) synthetic drug
 - b) food component with potential therapeutic benefit
 - c) sports drink
 - d) preservative
- (viii) Epigenetic modifications cause changes in gene expression by
 - a) altering DNA sequence
 - b) altering DNA accessibility via chemical tags
 - c) changing blood pH
 - d) increasing exercise efficiency
- (ix) Infer the full form of UIP

- a) Universal Immunization Program
c) Unified Immunization Program
- (x) Examine the year India launched UIP
a) 1985
c) 2000
- (xi) Distinguish the age group targeted by UIP
a) Adolescents
c) Elderly
- (xii) Classify polio eradication strategy
a) Therapeutic
c) Genetic modification
- (xiii) Recall developer of first smallpox vaccine
a) Jenner
c) Sabin
- (xiv) Assess evidence from opinion
a) Evidence is research-based
c) Evidence is anecdotal
- (xv) Defend the gold standard design in nutrition research
a) RCT
c) Ecological study
- b) Uniform Immunization Plan
d) Universal Infant Program
- b) 1990
d) 1974
- b) Pregnant women & infants
d) Workers
- b) Mass immunization
d) Nutrition only
- b) Salk
d) Pasteur
- b) Opinion is always correct
d) Opinion uses statistics
- b) Case-control
d) Case series

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Compare probiotics, prebiotics, and synbiotics in immune modulation. (3)
3. Differentiate immune changes seen in malnutrition, autoimmunity, and hypersensitivity. (3)
4. Evaluate the role of herd immunity in population-level disease control. (3)
5. Differentiate between nutrigenetics and nutrigenomics in the context of therapeutic diet design. (3)
6. Evaluate the contribution of personalized nutrition to immune health. (3)

OR

- Judge the role of observational studies in shaping public health recommendations. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Analyze the role of the gut microbiome in modulating systemic immune responses. (5)
8. Assess the importance of translational research in bridging laboratory findings to clinical immunonutrition practice. (5)
9. Explain how omega-3 supplementation influences resolution of inflammation. (5)
10. Define innate immunity and describe its key components. (5)
11. Assess the impact of Vitamin A deficiency on child morbidity and mortality. (5)
12. Design an evaluation model to assess population-level impact of immune-supportive dietary interventions. (5)

OR

- Propose a strategic roadmap for integrating immunonutrition into national public health programs. (5)

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