

BZYCT-141

ASSIGNMENT BOOKLET

Bachelor's Degree Programme

**(BSCG)
IMMUNOLOGY**

Valid from 1st January, 2023 to 30th December, 2023



**School of Sciences
Indira Gandhi National Open University
Maidan Garhi
New Delhi-110068
(2023)**

Dear Student,

Please read the section on assignments in the Programme Guide for Core Courses that we sent you after your enrolment. A weightage of 30 per cent, as you are aware, has been earmarked for continuous evaluation, **which would consist of one tutor-marked assignment** for this course. The assignment is in this booklet, and it consists of three parts, Part A, B and C. The total marks of all the parts are 100, of which 35% are needed to pass it.

Instructions for Formatting Your Assignments

Before attempting the assignment please read the following instructions carefully:

- 1) On top of the first page of your answer sheet, please write the details exactly in the following format:

ROLL NO.:

NAME:

ADDRESS:

.....

.....

COURSE CODE:

COURSE TITLE:

ASSIGNMENT NO.:

STUDY CENTRE: **DATE:**

PLEASE FOLLOW THE ABOVE FORMAT STRICTLY TO FACILITATE EVALUATION AND TO AVOID DELAY.

- 2) Use only foolscap size writing paper (but not of very thin variety) for writing your answers.
- 3) Leave 4 cm margin on the left, top and bottom of your answer sheet.
- 4) Your answers should be precise.
- 5) Complete each of Part A, Part B and Part C of this assignment separately, and **submit them together.**
- 6) The assignment answer sheets are to be submitted to your Study Centre as per the schedule made by the study centre. **Answer sheets received after the due date shall not be accepted.**

We strongly suggest that you retain a copy of your answer sheets.

- 7) This assignment is **valid from 1st January, 2023 to 31st December, 2023.** If you have failed in this assignment or fail to submit it by December, 2023, then you need to get the assignment for the year 2024, and submit it as per the instructions given in the Programme Guide.
- 8) **You cannot fill the exam form for this course** till you have submitted this assignment.

We wish you good luck.

ASSIGNMENT IMMUNOLOGY

Course Code: BZYET-141
Assignment Code: BZYET-141/TMA/2023
Maximum Marks: 100

Note: Attempt all questions. The marks for each question are indicated against it.

Part-A

Maximum Marks: 50

1. i) Define the following terms: (8)
 - a) Tolerance
 - b) Autoimmunity
 - c) Phagocytic barriers of innate immunity
 - d) Inflammation
- ii) Give an example of each of the following in the space provided: (2)

Column I	Column II
Bacterial disease that can be prevented due to high body temperature	
Protozoan disease	
Autoimmune disorder	
Cytokine	

2. Write a comparative note on the role of Thymus and Bone marrow with respect to immune response. (10)
3. i) How does the protein structure influence the capacity of antigens to form antibodies? (5)
ii) Write down the differences between alloantigen and autoantigen. (5)
4. Fill in the blanks: (10)
 - i) The isotypes have similar regions of and chains but different regions of chains.
 - ii) The allotypes may have different amino acids in CDR regions of the chain or the chain.
 - iii) The idiotype provides antibodies to interact with different in one's own body.
 - iv) The fetus acquires immunity from the mother as can cross
5. i) Explain, Antigen processing and Antigen presentation? (5)
ii) What are the differences between class I and class II MHC molecules? (5)

Part-B**Maximum Marks: 50**

6. i) What is BCR? What are its functions? Which 2 Igs make up the BCRs? (5)
 ii) Describe the major events of the B-Cell maturation briefly. (5)
7. i) Choose whether following sentence are true (T) or False (F): (6)
 a) T helper cells possess CD8⁺ surface markers.
 b) Cytotoxic T -cells kills the antigen infected cells.
 c) MHC molecule requires to present antigen peptide on the surface of APCs.
 d) CD8⁺ marker recognizes MHC II complex.
 e) CD4⁺ marker recognizes MHC I complex.
 f) All nucleated cells possess MHC I molecule.
- ii) Define the CD and MHC molecules. (2)
 iii) Which type of antigen-presenting molecule is found only on macrophages, dendritic cells, and B cells? (1)
 iv) Which type of antigen-presenting molecule is found on all nucleated cells? (1)
8. i) Match the following with the correct option of Column I with Column II. (5)

Column I		Column II	
a)	Allergy	i	Paul Ehrlich
b)	Autoimmunity	ii	Type-IV hypersensitivity
c)	Cell-mediated hypersensitivity	iii	Type-II hypersensitivity
d)	Antibody-mediated hypersensitivity	iv	Type-III hypersensitivity
e)	Arthus reaction	v	Clemens von Pirquet

- ii) State whether the following statement are 'True' or 'False': (5)
 a) The removal of self-reactive cells within our body immune system is Tolerance.
 b) The deposition of antigen-antibody complexes in tissues or blood vessels causes the activation of complement system along with recruitment of neutrophils.
 c) Type-I hypersensitivity is accompanied by clinical symptoms like: anaphylaxis, angioedema, bronchospasm, hypotension etc.
 d) Myasthenia Gravis is a condition of muscular dysfunction arising from acetylcholine inadequacy not auto-immunity.
 e) Type-IV hypersensitivity is clinically associated with hemolytic anemia, thrombocytopenia, neutropenia.

9. i) What is immunosuppressive therapy. Explain the two major types of the same. (5)
- ii) Define the immunological tolerance highlighting the central and peripheral tolerance. (5)
10. i) Explain DNA vaccine. (5)
- ii) Based on formulation how many types of vaccines are there and give the example of major preventable diseases of each? (5)