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**BRAINWARE UNIVERSITY****Term End Examination 2025-2026****Programme – B.Sc.(BT)-Hons-2023****Course Name – Immunology****Course Code - BBT60121****(Semester VI)****LIBRARY**
Brainware University
Barasat, Kolkata -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) Identify the correct sequence of the multistep process involved in the emigration of phagocytes.
- a) Chemotaxis → Margination → Diapedesis b) Margination → Diapedesis → Chemotaxis
c) Diapedesis → Margination → Chemotaxis d) Chemotaxis → Diapedesis → Margination
- (ii) Determine how do T-cell receptors (TCRs) differ from B-cell receptors (BCRs) in antigen recognition.
- a) TCRs recognize free-floating antigens, while BCRs require antigen presentation b) Both TCRs and BCRs recognize free-floating antigens
c) TCRs require antigen presentation via MHC molecules, while BCRs can recognize free antigens d) BCRs require MHC molecules for antigen recognition, while TCRs do not
- (iii) Choose which membrane glycoprotein is primarily expressed on T helper (TH) cells.
- a) CD8 b) MHC I
c) CD4 d) MHC II
- (iv) Choose which molecule enhances the process of phagocytosis by binding to both antigen and macrophage.
- a) TLRs b) Antibody (opsonin)
c) Cytokines d) MHC molecules
- (v) Explain the fact about the IgM of humans
- a) IgM can cross the placenta b) IgM can protect the mucosal surface
c) IgM is produced by high-affinity plasma cells d) IgM is primarily restricted in the circulation
- (vi) Report the first recombinant antigen vaccine approved for human use
- a) Hepatitis B vaccine b) Hib vaccine
c) Var vaccine d) DPT vaccine
- (vii) Explain that mismatched blood group transfusion causes
- a) Activation of cytotoxic cells b) Activation of Type II hypersensitivity

9. Discuss the steps involved in VDJ recombination and how this process contributes to the diversity of the antibody repertoire in B cells. (5)
10. Explain the process of membrane attack complex (MAC) formation and its significance in pathogen lysis. How do host cells protect themselves from MAC-mediated damage? (5)
11. Differentiate between positive and negative selection in T-cell maturation, explaining their significance in shaping the T-cell repertoire. How do these selection processes contribute to self-tolerance and MHC restriction? (5)
12. Compare different types of ELISA techniques routinely used for diagnostics. (5)

OR

Deduce the importance of recombinant vaccines with example. (5)

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