



16294



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – DMLT-2023/DMLT-2024

Course Name – Immunology & Serology

Course Code - DMLT302

(Semester III)

Library

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) Select the type of immunity that is present from birth and provides immediate defense against pathogens.
 - a) Adaptive immunity
 - b) Innate immunity
 - c) Acquired immunity
 - d) Passive immunity
- (ii) Choose the vaccine that is administered in the baby for the first time.
 - a) Hepatitis B
 - b) BCG
 - c) Chicken pox
 - d) Influenza
- (iii) Identify the primary lymphoid organ where T cells mature.
 - a) Bone marrow
 - b) Spleen
 - c) Lymph node
 - d) Thymus
- (iv) Identify the term used for a substance that can provoke an immune response.
 - a) Antigen
 - b) Antibody
 - c) Allergen
 - d) Pathogen
- (v) Identify the basic structural unit of an antibody.
 - a) One heavy chain and one light chain
 - b) Two heavy chains and two light chains
 - c) One heavy chain and two light chains
 - d) Two light chains and no heavy chain
- (vi) Identify the first class of antibody produced during an immune response.
 - a) IgG
 - b) IgM
 - c) IgA
 - d) IgE
- (vii) Select the option correctly indicating the clinical significance of O and H antibody titers in the Widal test.
 - a) O titers reflect past infection, H titers reflect current infection
 - b) O titers reflect active infection, H titers reflect past exposure

- c) Both titers are only elevated in vaccinated individuals
d) H titers reflect acute infection, O titers reflect chronic infection
- (viii) What does VDRL stand for?
a) Viral Disease Research Laboratory
b) Venereal Disease Research Laboratory
c) Viral Diagnostic Research Laboratory
d) Venereal Diagnostic Research Laboratory
- (ix) Select the sample that is used for VDRL test.
a) Whole blood
b) Serum or cerebrospinal fluid
c) Urine
d) Saliva
- (x) A positive VDRL test result must be confirmed by which of the following?
a) PCR
b) Treponemal-specific tests (e.g., FTA-ABS)
c) Viral culture
d) Antigen-antibody ELISA
- (xi) What does an elevated ESR indicate in a patient suspected of having RA?
a) Anemia
b) Active inflammation
c) Normal health
d) Kidney disease
- (xii) A patient tests positive for anti-CCP antibodies but negative for RF. What does this result indicate?
a) The patient likely has an early or less severe form of RA
b) The patient does not have RA
c) The patient has viral arthritis
d) The test was inconclusive
- (xiii) How is the amount of antigen quantified in RIA?
a) By measuring enzyme activity
b) By counting radioactive emissions
c) By observing color change
d) By measuring light absorption
- (xiv) In the CRP latex agglutination test, what causes visible agglutination?
a) Interaction of CRP with antigens
b) Interaction of CRP with antibodies
c) CRP binding to latex particles
d) CRP interacting with glucose
- (xv) Conclude the clinical significance of a Widal test showing 1:40 titer for both O and H antigens in a non-endemic area.
a) Likely acute infection
b) Likely past infection
c) No significant infection
d) Vaccination response

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the steps involved in performing a sandwich ELISA and its purpose. (3)
3. Explain how radioimmunoassay (RIA) measures the concentration of specific antigens or hormones in a sample. (3)
4. Define agglutination. (3)
5. Explain the concept of passively acquired immunity with suitable examples. (3)
6. Evaluate the impact of possible cross-reactivity in the interpretation of Widal test results. (3)

OR

Evaluate the clinical significance of a CRP test result in the context of a patient with symptoms suggestive of an autoimmune disorder. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Distinguish between precipitation and agglutination. (5)
8. Explain the clinical significance of the ASO test in diagnosing Streptococcal infection and describe the symptoms of Streptococcal infection. (5)
9. Compare the clinical significance of ESR and CRP test. (5)

10. Summarize the steps involved in the processing and presentation of endogenous antigens via MHC Class I. (5)
11. List the different classes of antibodies and describe their specific functions. (5)
12. Analyze the impact of combining anti-CCP and rheumatoid factor (RF) tests in improving diagnostic accuracy for rheumatoid arthritis. (5)

OR

Analyze how the presence of anti-CCP antibodies correlates with the severity of rheumatoid arthritis symptoms and disease activity. (5)

Library
Brainware University
393, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125