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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL

A Constituent Institution of Manipal University

II SEMESTER M.TECH. (INDUSTRIAL BIOTECHNOLOGY)

END SEMESTER EXAMINATIONS, APR/MAY 2017

SUBJECT: IMMUNOTECHNOLOGY [BIO 5250]

REVISED CREDIT SYSTEM

(27/04/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitable assumed.

1A.	What is an antigen? Give examples of microbial components that can act as antigens.	2
1B.	State the Koch's Postulates.	4
1C.	Present a schematic showing the complete differentiation of the multipotent haematopoietic stem cell.	4
2A.	Enlist four functions of blood in the human body.	2
2B.	What are the recognition mechanisms of innate immunity? Describe any two.	4
2C.	What is the role of spleen as an immune organ? Enlist any four functions.	4
3A.	State six characteristic features of the complement system.	3
3B.	Using diagrams, show the different types of blood group antigens in the human system.	3
3C.	Describe the structure of MHC Class I, with the polypeptide chains and the different regions involved.	4
4A.	Explain, in brief, the maturation of B cells, until the formation of X5, VpreB, Ig α and Ig β .	4
4B.	What are the various biological factors that contribute to the immunogenicity?	6
5A.	How does positive selection occur in the thymus, in the case of T cells?	4
5B.	Describe the basic structure of an antibody with the aid of a labelled diagram.	6