

SARDAR PATEL UNIVERSITY
Programme: MSC (Integrated Biotechnology)
Semester: VI
Syllabus with effect from: December 2012

Paper Code: PS06CIGB01	Total Credits: 3
Title Of Paper: Fundamentals of Immunology	

Unit	Description in detail	Weightage (%)
1	Immune System and its types: Innate and Acquired Immunity Humoral and Cell-mediated immunity (active, passive and adaptive immunity) Organs and cells involved in immune responses Inflammatory response	
2	Antigens, Antibodies and complements: Antigen and antigenicity: Types, structure and properties required for immunogenicity. Antibody: Structure, function and biological properties of Ig classes, brief introduction to antibody diversity, Monoclonal antibody production (hybridoma techniques and their application), polyclonal antibody Complement system: Functions of complements, The complement components, Complement activation	
3	Immune Responses: Humoral immune responses: B cell response to antigens (T-dependant and T independent antigens), antigen processing by B cell, Nature of B cell activation (by cross linking of antigen and by T _H cells), Plasma cells, Memory cells Introduction to MHC molecules and Ag-presenting cells (APC) Cell-mediated immune responses: T-cell maturation, thymic selection of the T cell repertoire, T _H cell activation	
4	Immunotechnology: Antigen-Antibody Reactions in liquid and gel, Toxin-Antitoxin reactions, Complement fixation test, Coomb's test, Application of Ag-Ab reactions Vaccine and its types.	
	Practical:	
	<ul style="list-style-type: none"> • DC of WBC • ABO and Rh typing of blood cells • Cross matching test • Rocket Immuno electrophoresis. • Dot ELISA. • Radial Immunodiffusion. • WIDAL test • RPR test 	



Basic Text & Reference Books:

- Textbook of Microbiology by Ananthnarayan & Paniker, 7th edition, Orient Longman Publications, ISBN 81-250-2808-0
- Immunology by Kuby, Goldby, Kindt & Osborne, 5th edition, W.H Freeman & Company, N.Y, ISBN 0-7167-4947-5
- Essentials of Immunology by Ivan Roitt, 11th edition, Blackwell scientific Publication 1994, ISBN 13978-14051-6066-7 and 101-4051-6066-7
- Immunology by Ivan Roitt, Jonathan Brostoff, David Male 1993 7th Eds Mosby Publication, ISBN 13-978-0808-92332-9 and 0-8089-2332-3
- Immunology by Tizard, 4th edition, Thomson Publications, ISBN 981-243-516-6.

