	Immunoglobulin G (IgG)
1.	
1. 2.	Monomer, named due to the presence of gamma heavy chain
	Percentage serum antibodies: 80%, Serum level is about 8 - 16 mg/ml
3.	Location: Blood, lymph, intestine
4.	Half-life in serum: 23 days
5.	Complement Fixation: Yes
6.	Placental Transfer: Yes, It is the only class of antibodies, which can cross placenta and gives
	protection to the baby in uterus from maternal infection
7.	Known Functions: Enhances phagocytosis, neutralizes toxins and viruses, protects fetus and
	newborn.
	Immunoglobulin A (Ig A)
•	it exhibits monomeric in serum and dimeric in secretions, such as saliva, tears, colostrums, mucus,
	sweat, gastric fluid form
•	It has alpha heavy chain and It can activate complement system
•	It contains two subclasses, Ig A ₁ and Ig A ₂ , present in ratio of 9 : 1.
•	IgA ₁ is mostly found in serum and made by bone marrow B cells
•	IgA ₂ is mostly found in mucosal secretions, colostrum and milk and is made by B cells located in the
	mucosa
•	It contains one molecule of J chain and secretory component
•	IgA present in colostrum (human milk) protects the baby from intestinal pathogens
•	The IgA also present in secretions (tears, saliva, nasal secretions, bronchial and digestive tract mucus
	and mammary gland secretions) is called secretory IgA
•	Half life 6 -7 days serum level 0.5 – 3 mg/ml
•	It can inhibit bacterial adherence, virus and toxin neutralization and prevention of antigen uptake by
	epithelial cells
	Immunoglobulin M (IgM)
•	Ig M is the largest among all immunoglobulins, called macroglobulin
•	Ig M is a pentamer contains μ chain and J chain
•	It is the main immunoglobulin produced first in the primary immune response after an antigenic
	stimulus
•	It constitutes 5 – 8% of serum immunoglobulins
•	It has 10 identical antigen binding sites
•	Half life – 5 days Serum concentration – 0.5 to 2 mg/ml
•	It is more efficient antibody in agglutination, complement fixation and cytolytic reaction
•	Its presence is the indicative of recent infections
•	It neutralizes viruses and toxins but less efficient than IgG.

	Immunoglobulin D (Ig D)		
•	Ig D consists of two light chains and two heavy chains		
•	It is found associated with the surface by B-lymphocytes along with Ig M and act as antigen receptor		
•	Half life – 2 to 8 days. Serum – 0 to 0.04 mg/ml		
Immunoglobulin E (Ig E)			
•	Ig E consists of two light chain and two heavy chains		
•	It plays a major role in immediate allergic reaction (anaphylactic).		
•	The Fc part of IgE interact on mast cells, which results in degranulation with the release of vaso active amines		
•	In individuals with allergic conditions, Ig E concentration is greatly increased and appear in external secretions		
•	Half life - 2 to 3 days.Serum - 0.00003 mg/ml		

TYPES OF HYPERSENSITIVITY REACTIONS		
Type I:	Classical immediate hypersensitivity (e.g. Allergic Asthma, Allergic rhinitis, Food & Drug Allergies,	
	Insect bites, etc.)	
Type II:	Cytotoxic hypersensitivity (e.g. Autoimmune Hemolytic Anemia, etc.)	
Type III:	Immune-complex mediated hypersensitivity (e.g. SLE, RA, etc.)	
Type IV	Cell mediated (delayed) hypersensitivity (e.g. Tuberculin (Montoux) reaction, etc.)	