Topic 1

1. Define the following: hypersensitivity, alloimmunity, autoimmune disorder, immunodeficiency.

Hypersensitivity: occurs when the normal immune mechanisms produce an exaggerated response to an antigen, or an inappropriate response to self-antigens. Eg bee sting.

Alloimmunity: type of delayed hypersensitivity (type IV) reaction caused by a reaction of immune system to antigens on transplanted cells from the same species. Eg blood transfusions.

Autoimmune disorder: Loss of the immune system's ability to distinguish self from non-self. Eg Graves disease.

Immunodeficiency: immune system is unable to respond appropriately because part of the system is defective, missing or has itself been compromised by disease. Eg HIV.

2. Describe the four types of hypersensitivity, providing an example of each.

I – III mediated by antibody responses, IV mediated by cytotoxic cells.

I	II	III	IV
Immediate or anaphylactic hypersensitivity - IgE antibody mediated - Mast cells → histamine → inflammation. - Immediate type	Cytotoxic hypersensitivity - IgG antibody mediated - Normal physiological functioning but against self disuse (autoimmune) - Targets antigens on surface of cells - Inflammation	Complex-mediated hypersensitivity - IgG mediated - Soluble antigens - Antigen – antibody complex (accumulates together), lodges in structures - Drives immune / inflammation response	Cell-mediated hypersensitivity - T-cell mediated - Delayed type -

3. In a flow diagram, outline the pathogenesis of type I hypersensitivity (using an asthmatic trigger as an example).