**1.** D

**[1]**

**2.** B

**[1]**

**3.** (a) *Must have both for* ***[1]****.* antigen is a substance / molecule that causes antibody formation;

antibody is a (globular) protein / molecule that recognizes an antigen; 1

(b) antigen causes an immune response to produce antibodies specific for that antigen;

antibodies produced in B-lymphocytes;

B-lymphocytes produced in bone marrow;

carried in blood;

antigen presenting cell / helper T cell present antigen to B cell; 3 max

(c) *Must name two for* ***[1]****.*CO2; O2; hormones; named nutrient; urea / excess ions; platelets; bicarbonate; 1 max

**[5]**

**4.**

*cause:*human immunodeficiency virus / HIV;

retrovirus / RNA to DNA;

enters T-helper cells; immune system becomes disabled / weakened;

greater chance for opportunistic infections;

*transmission:*sexually transmitted;

can be transmitted from man to woman / man to man contact / woman to man /  mother to fetus;

breast milk / saliva and other body fluids;

use of dirty needles;

blood transfusions;

**[8]**