### 6.3 Defence against infectious disease – summary of mark schemes

#### 6.3.2 Explain why antibiotics are effective against bacteria but not against viruses.

**Mark Scheme**
- A. antibiotics block metabolic pathways in bacteria / inhibit cell wall formation / protein synthesis;
- B. viruses use host cell metabolic pathways / do not possess a cell wall and so are not affected by antibiotics;
- C. (host cell) pathways are not affected by antibiotics;
- D. antibiotics are not used to treat viral diseases because they are ineffective and may harm helpful bacteria;

#### 6.3.3 Outline the role of skin and mucous membranes in defence against pathogens.

**Mark Scheme**
- A. skin / mucous membranes act as a physical barrier;
- B. skin has several layers of tough / keratinized cells;
- C. the skin is dry discouraging the growth and reproduction of pathogens;
- D. skin / mucous membranes host natural flora and fauna which compete with pathogens;
- E. the enzyme lysozyme is present on the skin’s surface to break down pathogens;
- F. skin is a continuous layer;
- G. mucous traps bacteria / sticky / mucus slightly acidic ie vagina;
- H. cilia sweep mucous up to be swallowed to kill bacteria;
- I. contain macrophages / phagocytes;

#### 6.3.5 Distinguish between antigens and antibodies.

**Mark Scheme**
- A. antigen is a substance / molecule that causes antibody formation;
- B. antibody is a (globular) protein / molecule that recognizes an antigen;

#### 6.3.6 Explain antibody production.

**Mark Scheme**
- A. antigen causes an immune response to produce antibodies specific for that antigen;
- B. antibodies produced in B-lymphocytes;
- C. B-lymphocytes produced in bone marrow;
- D. carried in blood;
- E. antigen presenting cell / helper T cell present antigen to B cell;

#### 6.3.8 Discuss the cause, transmission and social implications of AIDS.

**Mark Scheme**
- **cause:**
  - A. human immunodeficiency virus / HIV / HIV 1 and HIV 2;
  - B. retrovirus / RNA to DNA;
  - C. enters T-helper cells;
  - D. immune system becomes disabled / weakened;
  - E. greater chance for opportunistic infections;
- **transmission:**
  - F. Sexually transmitted;
  - G. can be transmitted from man to woman / man to man contact / woman to man / mother to fetus;
  - H. breast milk / saliva and other body fluids;
  - I. use of dirty needles;
  - J. blood transfusions;
- **social implications of AIDS:**
  - K. many orphaned children;
  - L. social stigma / discrimination;
  - M. problems obtaining employment / life insurance;
N. impact / costs on health systems of treating people;
O. early death reduces number of adults / reduces workforce / reduces family income;
P. drug treatment expensive;
Q. reduces promiscuity / encourages use of condoms;