1- Clarify the following:

A - Requirements for microbial infections.

The microbial infection of a certain microbe depends up on the presence of certain invasive tools such as enzymes and toxins which help the pathogenic microbe in the invasion process.

B - Common types of antigen.

TYPES OF ANTIGENS

A. T-independent Antigens

T-independent antigens are antigens which can directly stimulate the B cells to produce antibody without the requirement for T cell help. In general, polysaccharides are T-independent antigens. The responses to these antigens differ from the responses to other antigens.

B. T-dependent Antigens

T-dependent antigens are those that do not directly stimulate the production of antibody without the help of T cells. Proteins are T-dependent antigens. Structurally these antigens are characterized by a few copies of many different antigenic determinants as illustrated in the Figure 2.

C - Certain bacteria produce some enzymes that facilitate the infection process.

These enzymes are cellulose degrading enzymes and also a group of lyases enzymes which facilitate the infection process.
2- Complete the following:

A. Types of *E.coli* are enterotoxogonic, interopathogenic and…enteroinvasive

B. Treatment of *salmonella* by chloroamphinicol………

C. Treatment of *E.coli* by …pencillin….and streptomycin……….

*Good Luck*