ELISA (Enzyme-linked immunosorbent assay)-the direct version detects antigens, while the indirect method detects the presence of antibodies. See figure in Ch. 18.

Immunotherapy for cancer-improving the state of the immune system can be used to fight cancer. This approach can avoid damaging healthy cells while strictly targeting cancer cells. In addition, the possibility of avoiding the usage of chemotherapy and radiation as treatments is most appealing.

Cancer treatments can be therapeutic if used to treat existing cancers or prophylactic if used in a preventative fashion. Since infection with the Hepatitis B virus can cause liver cancer, using the vaccine to prevent Hepatitis B infection in the first place can be considered a prophylactic treatment for liver cancer. Gardasil is a vaccine used to prevent cervical cancer that is caused by the human papillomavirus. Capsid proteins which are manufactured using recombinant DNA technology are used for this vaccine.

Combining monoclonal antibodies with a toxic agent and targeting cancer cells is a therapeutic form of immunotherapy. This combined form of an antibody and a toxic agent is referred to as an immunotoxin. Ricin, toxin from Corynebacterium, toxin from Pseudomonas and radioactive isotopes are examples of toxic agents that may be attached to antibodies that can be used in this therapy. Antibodies attach to cancer cell antigens and deliver their deadly cargo. Toxins are concentrated where the cancer cells are located.

Note: In studying for Lecture Exam 4, remember that approximately 90% of the questions will come from unit 4 material. The remaining 10% (again approximate) will be derived from the etiologic agent list that the class has been compiling since day 1.