Chapter 5 and 6
Review questions

Chapter 5:
Sections covered (5.2, 5.3, 5.4, 5.5, 5.8, 5.10)
Page 172
- Know all the key terms
- Questions 2, 3, 4, 6, 7,

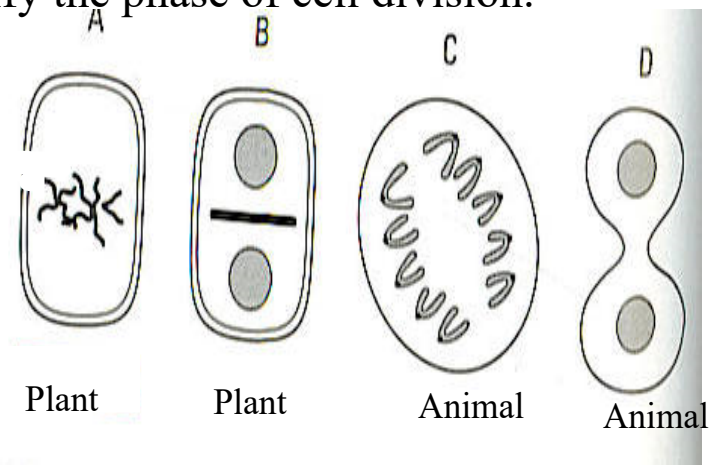
Chapter 6:
Sections covered (6.1, 6.2, 6.3)
Page 198
- Know all the key terms
- Questions 2, 3, 4, 5, 6, 12, 13, 14,

Page 172
- Know all the key terms
- Questions 2, 3, 4, 6, 7,

2) Use the diagram in figure 1 of plant and animal cells during cell division.

(a) Identify each of the cells as either plant or animal cells.

(b) Identify the phase of cell division.



3) What is the cell cycle?

Cells alternate between stages (phases) of dividing and not dividing. The sequence of events from one division to another is called the cell cycle. For most cells, cell division marks only a small part of the cycle.

4) What is interphase and why is it important for the process of cell division?

The stages between division, called interphase, is marked by rapid growth and the duplication of genetic material, followed by another period of growth and preparation for further division.

6) What evidence can you provide that suggests that not all cells divide at the same rate?

Cells from the brain show little capacity to regenerate. Skin cells are replaced after a sunburn. Calluses form on the hands quickly after cutting wood.

7) Why is the duplication of genetic material important for cell division?

If the genetic material did not duplicate, the cell would not be able to divide again. Single- stranded chromosomes move to opposite sides of the cell during metaphase. Once the cell has undergone cytokinesis, these single- stranded chromosomes must once again become double-stranded for mitosis to occur again.

Page 198
- Know all the key terms
- Questions 2, 3, 4, 5, 6, 12, 13, 14,

2) Why is DNA replication important for the survival of life on Earth?

DNA replication is required for cells to divide. The genetic material, regulating cell activity, must be found in each new cell.

3) Use figure 1 to answer the following questions:

(a) Describe the process shown.

DNA replication

(b)Indicate why the process is essential to all living things

The duplication of genetic material is needed for cell division since the material must be present in both daughter cells

4) Describe a DNA molecule and identify its three chemical components?

DNA molecules are shaped liked twisted ladders. The three types of components that make up the DNA structure are :

Ribose Sugars,
Phosphates,
and nitrogen bases. → A, T, G, C

5) How does DNA replicate?

The DNA molecule unzips and each strand serves as a blueprint for a complementary strand.

6) Briefly describe the process of DNA fingerprinting.

- DNA is removed from the nucleus
- Special chemicals are used to cut apart the DNA. In many ways the chemicals work like scissors.
- Segments of DNA are placed on a gel and pulled across the gel by an electrical current, thus creating bands.
- Bands of DNA can then be matched to known samples

12) In what ways does a cancerous cell differ from a normal cell?

Cancer cells divide faster than normal cells. Normal cells cannot divide when isolated from one another. Cell to cell communication is essential for normal cell division. Cancer cells, by comparison, are capable of dividing in isolation. Some cancer cells grown in an artificial culture are capable of dividing once ever 24 hours.

13) List three factors that cause or contribute to the development of cancer.

All cancers are caused by changes in the genetic messages that controls cell division. However, many different thing can alter DNA. Viruses can cause one type of cancer. Some types of white-blood cell cancer (leukemia) have been associated with viruses. Radiation has been linked to other types of cancer. Skin cancer has been linked to UV radiation. A third type of cancer is associated with the exposure to harmful chemicals present in our environment. A variety of cancer-causing substances can be found in cigarettes. Scientist agree that all cancers alter the genetic information present in DNA. A change in a cell's genetic material is called a mutation.

14) What change on lifestyle could reduce the incidence of cancer?

Stop smoking, proper diet (reduce processed food and animal fats) , reduce exposure to sunlight.