

## BSCS Biology Chapter 8 Study Guide

1. List the purposes of cell division in eukaryotic multicellular organisms.
2. What is the role of the cell cycle?
3. What must happen to the cell volume in order for a prokaryotic membrane to pinch inward and divide the cell in two?
4. During division of a prokaryotic cell why can the nuclear membrane not be seen dividing?
5. What is another name for prokaryotic cell division?
6. List the functions served by cell division.
7. What does eukaryotic cell division need to occur?

8. Which of the following statements are false?
- a. The cell cycle may exhibit different stages in different eukaryotes.
  - b. The cell cycle is similar in all eukaryotes.
  - c. The cell cycle is totally dissimilar in different eukaryotes.
  - d. All are true statements.
9. How many daughter cells are the results of the cell cycle?
10. Draw the cell cycle and name and describe what occurs [in detail] during each phase. Many questions throughout exam on the cell cycle, phases on what occurs in each phase.



20. A scientist was collecting data about the number of chromosomes that a certain organism had. Most of the skin cells that he examined had a certain amount of chromosomal material, but he found some skin cells with double the chromosomal material. What might be the explanation for these findings?
21. Describe the backbone of DNA.
22. Name the process that involves enzymes binding to DNA.
23. Define: proto-oncogene.
24. Are oncogenes needed by the cell? If so, why?
25. How did Watson and Crick describe the DNA molecule?
26. Name the base pairings of DNA. What determines how they are paired?
27. What is DNA polymerase and its role in DNA replication?
28. During DNA replication, why are the new bases of the two DNA strands added in opposite directions?

29. What type of bond keeps the new nitrogen bases together once they attach to old nitrogen bases?
30. Where do the strands separate in order for the replication of a double-stranded DNA molecule to begin?
31. Define: spindle fibers, microtubules, nucleosomes, histones.
32. At what sites are the nitrogen bases added to the split DNA molecule during replication?
33. What identifies and repairs incorrect or damaged nucleotides.
34. Draw and identify the parts of a nucleotide.

35. List the steps of the error correction sequence for newly replicated DNA. Why is this sequence important? Which molecule acts as the “proofreader”?

36. Define: mutation.

37. Define: centrioles, centromeres, polar bodies, spindle fibers, cell division, replication, regeneration.

38. Before mitosis a cell has 8 chromosomes. How many will it have after mitosis?

39. Draw and label the mitotic cycle. Describe [in detail] each phase. There are several questions on this process.

40. Name the event which distinguishes mitosis in plant cells from mitosis in animal cells.

41. Define: cyclins

42. Provide another names used for cell-cycle checkpoint proteins.

43. Define: microtubules. Describe their role within the cell.

44. Define: kinases, cyclin-dependent kinases

45. What do checkpoint controls in the cell cycle monitor? Where do they occur?