Asexual Reproduction, Mitosis, Meiosis AND DNA Review Name Key

C 1. Type of asexual reproduction when an offspring grows from a piece of its parent (like starfish).

A 2. Type of asexual reproduction when a new organism grows on the body of its parent. When it is large enough it breaks off to live alone.

F 3. Involves 2 parent organisms and the process of meiosis

B 4. Type of asexual reproduction in prokaryotic cells, such as bacteria, where the parent cell divides into two identical cells.

E 5. Involves 1 parent organism and produces organisms that are genetically identical to the parent.

D 6. Type of asexual reproduction in which offspring grow from a part of a parent plant.

A. Budding
B. Fission
C. Animal Regeneration
D. Vegetative Reproduction
E. Asexual Reproduction
F. Sexual Reproduction

	Asexual	Sexual
Advantages	7. Can reproduce w/o a mate 8. rapid reproduction, large #s offspring	11. genetic variation – better chance of survival in harsh conditions 12. allows for selective breeding
Disadvantages	9. identical offspring, no genetic variation, disease will kill all 10. genetic mutation passed to all offspring	13. takes time & energy, have to find a mate 14. fertilization can't take place during pregnancy

15. What is a prokaryote? a simple cell with no nucleus or membrane-bound organelles (like bacteria, and other protists)

16. What is a eukaryote? a cell (usually plant or animal) with a nucleus and organelles

17. What is cloning? using the DNA of an animal/plant to fertilize an egg that can be developed (grown) in a host

18. Mitosis is to asexual reproduction as Meiosis is to sexual reproduction.

19. Write the 3 main stages of the Cell Cycle in the correct order: Interphase, Mitosis, Cytokinesis

20. What stage does the cell spend 90% of its time? Interphase

20. Mitosis occurs in human body cells which have 46 chromosomes.

21. What are the 4 phases of Mitosis? Prophase, Metaphase, Anaphase, Telophase.

E 22. Centromeres break down and spindle fibers pull sister chromatids apart from each other and toward opposite poles of the cell.

C 23. In this phase, chromosomes wind up and condense into sister chromatids. The nuclear membrane disappears and spindle fibers as well as centrioles appear.

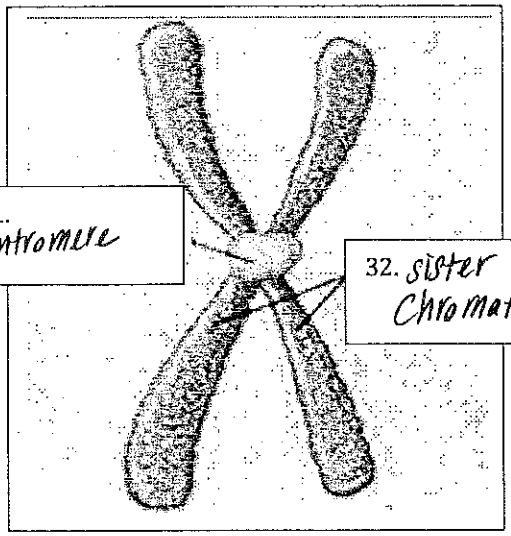
D 24. In this stage, the parent cell fully divides into two genetically identical daughter cells.

A 25. Sister chromatids line up along the equator (middle) of the cell.

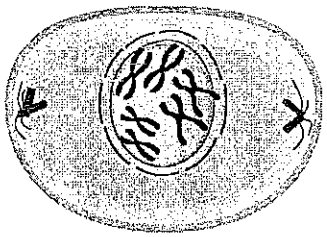
B 26. Most time consuming stage of the cell cycle in which chromosomes (DNA) and organelles replicate in preparation for mitosis.

F 27. In this phase, chromatids unwind and become invisible chromosomes. The nuclear membrane reappears and spindle fibers as well as centrioles disappear. A furrow or cell plate forms which appears to divide the cell.

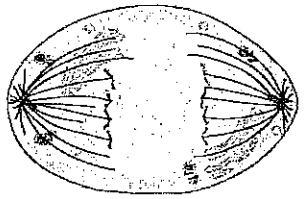
A. Metaphase
B. Interphase
C. Prophase
D. Cytokinesis
E. Anaphase
F. Telophase



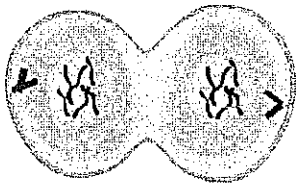
33. What phase? Prophase



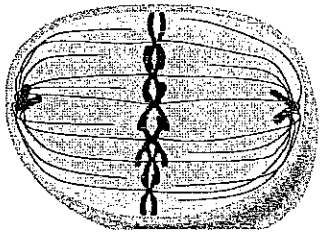
34. What phase? Anaphase



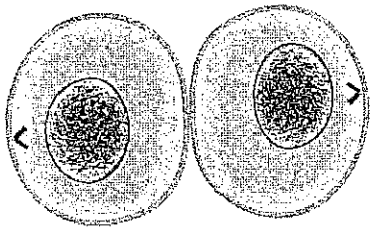
35. What phase? Telophase



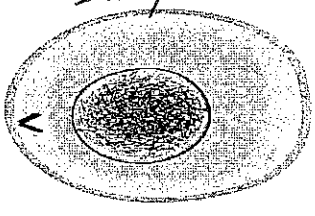
36. What phase? Metaphase



37. What stage? Cytokinesis



38. What stage? Interphase



39. How many cells are made in Mitosis? 2

40. Each daughter cell in Mitosis has how many chromosomes? 46

41. What stage occurs before Meiosis? Interphase

42. What gets replicated during Interphase? Chromatin (Chromosomes)

43. How many divisions occur in Meiosis? 2

44. When does crossing over occur? Metaphase I

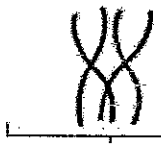
45. What is crossing over?
the exchange of genetic material between sister chromatids

46. What is the purpose of Meiosis?
to make sex cells with ½ the # of Chromosomes so that when fertilization occurs the original # Chromosomes is restored (to 46)

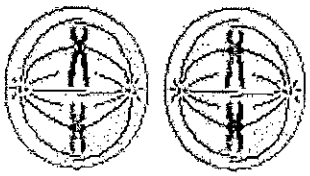
47. How many chromosomes are found in human gametes? 23

48. In males, all 4 daughter cells go on to be Sperm and in females, one of the 4 becomes an egg.

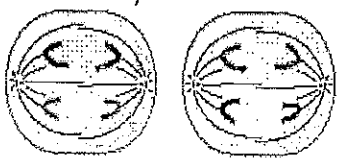
49. What is this?
2 doubled Chromosomes (or 2 chromatids which have replicated)



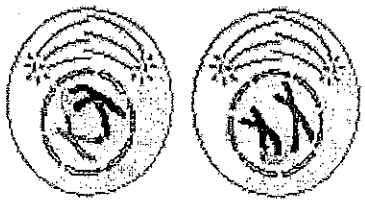
50. What phase?
Metaphase 2



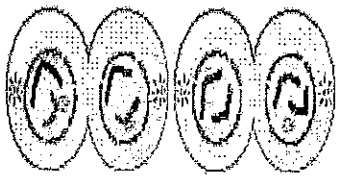
51. What phase?
Anaphase 2



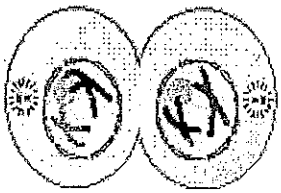
52. What phase?
Prophase 2



53. What phase?
telophase 2



54. What phase?
telophase I



55. What stage? Cytokinesis

56. What does DNA stand for?
Deoxyribonucleic Acid

57. DNA is made up of nucleotides, what are the 3 parts of a nucleotide? deoxyribose (sugar), phosphate, and nitrogen base.

58. What 2 things make up the backbone or sides of the DNA? deoxyribose (sugar) and phosphate

59. What makes up the middle or the rungs/steps of the DNA?
nitrogen bases

60-63. What are the 4 nitrogen bases? Adenine, Thymine, Guanine, and Cytosine.

64. What does Adenine pair with? Thymine

65. What does Guanine pair with? Cytosine

66. What is the shape of DNA? double helix (twisted ladder/spiral staircase)

67. What 2 scientists discovered DNA? James Watson and Francis Crick

68. What female scientists helped determine the double helix shape but did not receive the Noble Prize because she died before it was given? Rosalind Franklin

69. What is DNA Replication?
when DNA copies itself

70. Please replicate the following strand:

TAAGCGATTGGCAGTCGA
ATTCGCTAACCGTCAGCT

71. In DNA Replication, what enzyme unzips the original strand of DNA by breaking the hydrogen bonds between the nitrogen bases? helicase

72. After this enzyme unzips the strand, new nitrogen bases are added onto the exposed strand of DNA by the enzyme DNA Polymerase. A pairs with T and G pairs with C.

73. Finally, the new nitrogen base pairs are sealed up by the enzyme DNA Ligase and the backbone, which is composed of phosphate and deoxyribose (sugar) is linked up. This creates 2 identical strands of DNA!

74. Where is DNA found in a cell? nucleus

75. Organized packages of condensed DNA are called chromosomes

76. Sections on the chromosomes that code for a particular trait are called genes