

UNIT 5 REVIEW

A.) Cell Communication

1. Describe two examples of "Direct Contact Signaling with Gap Junctions"
2. Describe "Cell-Cell recognition"
3. What is a receptor molecule?
4. Describe the difference between "Paracrine Signaling and Synaptic Signaling"
5. Describe "Hormonal Signaling" with endocrine cells and target cells
6. What is a target cell?
7. Which types of signaling are considered local? Long distance?
8. List and describe the three stages of cell signaling
9. Explain the difference between a one messenger mechanism and a two messenger mechanism

B.) The Cell Cycle

10. Name the two components of cell division
11. List the 3 functions of Mitosis in organisms
12. What is the result of Mitosis?
13. Does Mitosis occur in eukaryotic cells or prokaryotic cells?
14. List and describe the phases of Mitosis
15. Describe the difference between Plant and Animal Mitosis
16. List and describe the 4 phases of the Cell Cycle
17. Where in the Cell Cycle is the "restriction point"?
18. What is meant by G_0 phase? What type of cells remain in G_0 ?

19. Where are the 3 checkpoints in the Cell Cycle?
20. Name the 2 major proteins that regulate the Cell Cycle
21. Describe a Cdk (Cycle dependent Kinase)
22. When during the Cell Cycle is the MPF (Cdk complex) the highest?
23. Describe the behavior of a Cancer Cell
24. What is the difference between a Benign Tumor and Malignant Tumor?
25. Define "Metastasis"

C.) Meiosis

26. How are Diploid cells different from Haploid cells
27. What are Homologous Chromosomes, or Homologues?
28. Why do cells contain homologous pairs of chromosomes?
29. What is the result of Meiosis?
30. What is the function of Meiosis?
31. Define Gametogenesis?
32. Compare and Contrast Spermatogenesis and Oogenesis
33. Where there is SEX, there is VARIETY!
List 3 sources of variation in organisms
34. Identify the 3 different sexual lifestyles

D.) Mendelian Genetics

35. Explain Mendel's Law of Segregation
36. Explain Mendel's Law of Independent Assortment
37. What is meant by "alleles"
38. What is the difference between "genotype" and "phenotype"?
39. What is the difference between "homozygous" and "heterozygous"?

40. What is a "test cross" and why is it used?
41. Know all your "Modes of Inheritance"!!!!

| | |
|--------------------|----------------------|
| Dominant/Recessive | Incomplete Dominance |
| Codominance | Sex-linkage |
| Multiple alleles | Dihybrid Cross |

E.) Modern Genetics

42. What are Pedigree Charts, and how are they used?
43. List the 3 parts of the "Chromosome Theory"
44. Define "Gene Linkage" Who discovered this?
45. Name the physical factor that breaks a gene linkage
46. How are parental offspring and recombinant offspring?
47. What physical phenomenon causes the recombinant offspring?
48. Describe Sturtevant's reasoning for "recombinant frequency"
How is a linkage map made?
49. Define "epistasis"
50. Define "pleiotropy"
51. Define "aneuploidy"
52. What causes aneuploidy?
53. List and describe the 4 types of chromosomal mutations
54. What is a "karyotype" and what is it used for
55. How is a karyotype made?
56. List and describe 4 genetic diseases
57. Explain "organelle inheritance".
58. How is a Chi-Squared test done?