

Part 1

1. E
2. D
3. B
4. C
5. B
6. C
7. B
8. D
9. D
10. B
11. A
12. A
13. A
14. E
15. C
16. D
17. C
18. B
19. B
20. B

Part 2

1. D
2. G
3. K
4. I
5. J
6. A
7. B
8. H
9. E
10. L

Part 3

1. Histones
2. Peptidyl transferase
3. Nucleolus
4. LacY, LacA (only one of the two needs to be given for full credit)
5. Their staining properties

6. DNA Replication
7. Hydroxyl
8. X-chromosome
9. Hox genes
10. Charge
11. 3
12. Penetrance
13. CBAD
14. 2
15. 0
16. Ultraviolet (UV)
17. Nucleotide excision repair
18. Chargaff
19. Deoxyribose
20. Mosquitoes
21. Cross a white eyed fly and a black eyed fly, then cross the F1 generation and observe the ratio of white eyed to black eyed flies in the F2 generation. The dominant color will be 3 times more frequent than the recessive color. {Answer must include all steps to get the 3 points}.
22. Base pairing rules are relaxed on the third nucleotide base of the codon and anticodon, allowing for a single tRNA to be able to bind to more than one type of codon. This phenomenon is known as wobble.
23. The two processes are crossover and independent assortment. During crossover is the exchange of genetic material between two homologous chromosomes non-sister chromatids that results in recombinant chromosomes during sexual reproduction. Independent assortment is where alleles for a gamete are randomly arranged and independently sorted to one side of the replicating cell. This allows for the gamete to get a random mix of alleles.