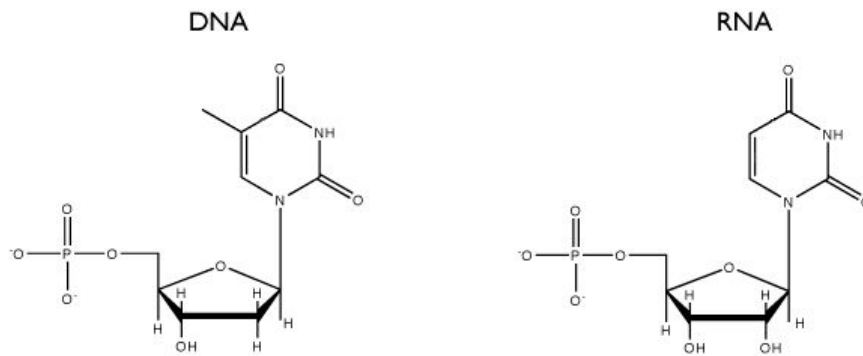


Designer Genes Key

1 point unless stated otherwise

1. Gene
2. Allele
3. Locus
4. Histones
5. Gregor Mendel
6. 1:0:0:0 (accept 1:0, 100%, or anything similar)
7. Frameshift
8. Silent
9. 50%, 1/2
10. Incomplete dominance
11. Independent assortment
12. SRY gene (Sex-determining region of Y)
13. Male
14. Carriers
15. Deoxyribonucleic acid
16. C, H, O, N, P
17. Phosphodiester covalent bonds
18. Mother
19. S
20. Ribozymes
21. microRNAs (miRNAs), small interfering RNAs (siRNAs)
22. Polysome/polyribosome
23. Polyadenylation
24. Spliceosome
25. Prophase I
26. A. 100
B. no, could be X from father or mother

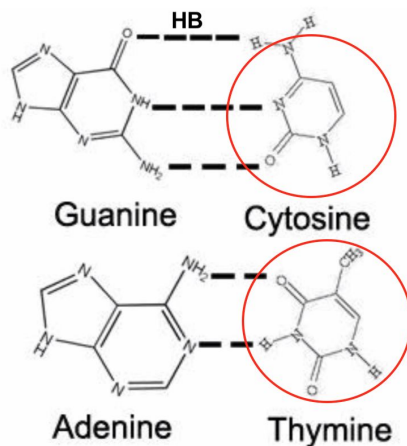
27. holoenzyme : formed by the combination of an enzyme with a coenzyme apoenzyme: inactive enzyme, activation of the enzyme occurs upon binding of an organic or inorganic cofactor. (2)
28. Dominance is the phenomenon in which the alleles of the same locus interact with each other to produce a phenotype. Epistasis is a type of interaction that occurs between alleles of different loci. (2)
- 29.



There are two differences between the structure of DNA (on the left) and RNA (on the right). DNA contains a sugar group with a 2' hydrogen, while RNA contains a 2' hydroxyl group (circled in blue). DNA contains the base thymine, which base pairs with adenine. Instead of thymine, RNA contains a related base called uracil. Uracil is similar to thymine but lacks a methyl group (circled in red). Like thymine, uracil can base pair with adenine.

(3)

30.



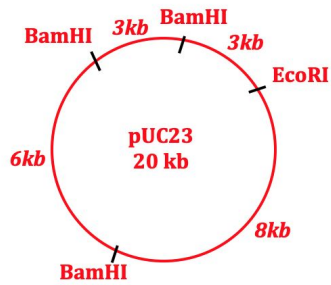
(6)

31. A. Transcription

b. Translation

- 32. DNA replication
- 33. A. Chromosome
 - B. DNA
- 34. A. Helicase
 - B. Separate DNA
- 35. A. C
 - B. Okazaki fragments
- 36. A. DNA Polymerase
 - B. 5'→3'
- 37. Replication fork
- 38. A. Topoisomerases
 - B. participate in the overwinding or underwinding of DNA
- 39. A. Template
 - B. False
- 40. Prophase Metaphase Anaphase Telophase
 - a. Metaphase
 - b. Telophase
 - c. Anaphase
- 41. Karyotype
- 42. Male
- 43. A. Down Syndrome
 - B. distinct facial appearance, intellectual disability, developmental delays,
 - C. Nondisjunction
- 44. A. Operator
 - B. Stops transcription
- 45. Promoter
- 46. Catabolite activator protein
- 47. A. Transcription increase
 - B. Cyclin AMP

48. Allolactose acts as a ligand that bind to repressor so it will bind to operator. Stops RNA Polymerase from moving past promoter. No transcription. (3)
49. Gel electrophoresis
50. Cathode bottom Anode Top
51. Size and charge of DNA fragments
52. (4) right placement/order, right kb fragments, adds up to 20 kb, labeled



53. D
54. B
55. C
56. D

TOTAL POSSIBLE 85 pts