

# INTERNATIONAL INDIAN SCHOOL, RIYADH

## **Class XII-Biology**

### **Worksheet - GENETICS 1 AND 2**

1. Difference between Mendelian and Chromosomal disorder. Any 3
2. Name any 2 chromosomal aberration disorders.
3. Explain how the inheritance pattern of sickle cell differ from haemophilia. Any 3
4. When a garden pea with green pods was cross pollinated with another plant with yellow pods, 50% of the progeny bore green pods. Work out the cross to illustrate this. What is the type of cross. Why is this type of cross done?
5. Write the % of F<sub>2</sub> homozygous and heterozygous population in a typical monohybrid cross.
6. Differences between mRNA synthesis in prokaryotic and eukaryotes.
7. RNA is the 1<sup>st</sup> genetic material. Why?
8. Name the enzyme responsible for tRNA synthesis.
9. Explain the structure of tRNA. What does the actual structure of tRNA look like?
10. How does the single RNA polymerase help in all the 3 steps of transcription/.
11. Draw a double stranded DNA showing a total of 4 nitrogenous bases.
12. How do ribosomes act as factories of protein synthesis?
13. Describe the initiation and termination of protein synthesis.
14. Mention the contributions of ..Wilkins and Erwin Chargaff.
15. Explain DNA replication.
16. Difference between repressor and inducer. Any 2
17. List the findings of Francis Crick, Marshall Nirenberg, Severo Ochoa, Har Gobind Khorana, George Gamow, M.S. Swaminathan,
18. The base sequence of template DNA is TAGCATGAT. Give its complementary sequence. Also give the mRNA and coding strand along with their polarity.
19. 3 differences between termination of translation and transcription.
20. What is the ATP in peptide chain formation.?

21. How does the genetic material of HIV differ from bacteriophage?
22. Why does DNA replication occur in small replication forks and not in its entire length?
23. How does the repressor get inactivated in a lac operon? When does the transcription of lac mRNA stop?
24. Name the event during cell division cycle that results in the gain or loss of a chromosome.
25. Explain Morgan's observations by giving reasons.
26. Name an autosomal dominant and autosomal recessive Mendelian disorder.
27. 2 homozygous plants with genotypes RRYY and rryy are crossed and their F1 generation was selfed. What shall be the i) phenotype of F1 ii) genotype of F1 iii) genotype of the gametes of F1 progeny iv) phenotypic ratio of F2 v) phenotypic ratio of yellow seeds to green seeds
28. Explain thalassemia.