

**Assignment for B.Sc Botany Hons 6th Semester, (C13T,Unit 8),(C14T,Unit 3, Unit 5),(DSE4T,Unit 7)**

By Dhriti Ghose Assistant Professor, Dept of Botany(UG and PG) Raja N.L.Khan Women's College(Autonomous)

**C13T,Unit 8**

Signal transduction-

1. Describe the general features of signal transduction. Give examples of some signals or ligands.5
2. Derive the straight line equation of receptor ligand interaction.5
3. Discuss the mechanisms of signal transduction by the 6 types of receptors with diagram.5
4. Give an account of Beta adrenergic signal pathway with diagram.5
5. Describe the MAP kinase cascade with diagram.5
6. Discuss the  $Ca^{+2}$  calmodulin mode of signal transduction. Write short note on calmodulin 3+2=5
7. Discuss the concept of second messengers. Give some examples.3

### **C14T,Unit 3**

1.Discuss the process of genetic selection in screening DNA libraries for genes of interest in *S.typhimurium*.3

2.Describe the complementation screening with diagram in yeast.5

3.State the limitations of complementation screening.2

4.Describe the process of colony hybridization in molecular hybridization techniques of screening a DNA library with diagram.5

5.Write down the applications of PCR.5

6.Write the limitations of PCR.2

7.Describe the process and steps of PCR with diagram.5

8.Calculate the final no of DNA molecules if the starting no of DNA molecules are 1, 4, 8,16 respectively after 32 cycles.(Use formula

$$N_f = N_i \times 2^n) \quad 2 \times 4 = 8$$

9.What are the things needed to start a PCR reaction.3

10.Who discovered the PCR technique? What type of enzyme is used here?2

### **C14T,Unit 5**

1.What are the 3 aspects of biosafety concerns. Discuss.5

2.Write a short note on Humulin or human insulin.5

3.Write a short note on Human growth hormone.5

4. What is superbug? Who created and patented it? How is it better than the wild types?  $1+1+2=4$

5. How superbug was created? What is its role in bioremediation?  $3+2=5$

6. What is edible vaccine? How is it developed?  $1+4=5$

7. Give advantages and disadvantages of edible vaccines? Give few examples.  $1.5 \times 2 + 2 = 5$

### **DSE4T, Unit 7**

1. Write down few rules of using numbers and units with examples in a scientific writing.  $2.5 \times 2 = 5$

2. What is abbreviation? Give few examples.  $2+1=3$

3. Write down few general rules of scientific nomenclature in Biological sciences or plant sciences.  $3$

4. Write down the importance of references. Name few major reference formats.  $3+1=4$

5. What is copyright?  $2$

6. What exclusive rights does a copyright give to its holders?  $2$

7. What does copyright protect? And what is fair use?  $1+1=2$

8. Define academic misconduct. Define plagiarism? What are the things that plagiarism includes?  $1+1+2=5$

9. Why you should always adhere to ethical norms in research?  $3$

10. What are the ethical principles. Discuss in brief.  $5$

11. Which actions are regarded as highly unethical.3