**Biochemistry: DNA, Proteins, and their Applications – Lecture 2 Worksheet**

Definitions:

* Reactive Oxygen Species (ROS):
* Genomic Instability:
* Osmotic Stress:
* Protein Aggregation:
* Proteasome:
* Autophagy:
* Redox Reaction (Oxidation/Reduction):
* DSB:
* SSB:
* Non-Homologous End Joining (NHEJ):
* Microhomology Mediated End Joining (MMEJ):
* Homologous Recombination:

Protein and DNA Damage

1. What kind of cellular stress elicits the Unfolded Protein Response (UPR)?
2. What kind of cellular stress results in DNA damage?

DNA Damage Response/Repair

1. What is the difference between the DNA Damage *Response* and DNA Damage *Repair*?
2. Who are the main key players in the DNA Damage Response?
3. What DNA damage repair mechanism occurs in all phases of the cell cycle?
4. What are the two main DNA damage repair pathways? Name at least 3 differences between the two pathways.
5. What was the most interesting topic to you discussed today?