

簡答下列問題，每題十分。所有考題務必在答案卷上作答。

1. Mitochondria are referred as the power plants of aerobic eukaryotic cells, why?
2. Explain why K_m is increased but V_{max} remains unchanged in typical competitive inhibition.
3. In each following pairs, select the fatty acid which has the higher melting temperature.
 - (a) 16:0, 16:1
 - (b) 18:1, 18:2
 - (c) 18:3, 20:4
4. Explain why urea production is increased during starvation?
5. Describe the pathway by which cholesterol is uptakened.
6. Describe classes of hormones and explain their general mode of action.
7. Describe the function of DNA supercoiling.
8. Compare transcription and reverse transcription in terms of the following characteristics: (a) direction of polynucleotide synthesis; (b) template; (c) primer; (d) incorporated nucleotides.
9. Explain how each of the following is used in cloning a plasmid: (a) antibiotic resistance genes; (b) origin of replication; (c) polylinker region
10. Describe how a transgenic animal is produced.