編號： 63

國立成功大學 109 學年度碩士班招生考試試題

系　　所：生物科技與產業科學系

考試科目：分子生物學

考試日期：0211，節次：2

※ 考生請注意：本試題不可使用計算機。　請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

一、解釋名詞 (30%) 每題 5 分，請勿做字面上翻譯

1. microsatellite DNA
2. riboswitch
3. homologous recombination
4. transcription repressor
5. catabolite repression
6. pseudogene

二、簡答題 (70%)

1. Please describe one of the histone modifications and explain its function on chromatin. (2%, 6%)
2. What is ChIP? What is the purpose to perform ChIP in molecule biology research? (4%, 4%)
3. How CRISPR/Cas9 technology acts? Please provide an example for its application. (8%, 4%)
4. How miRNAs works? Please list at least two biological roles of miRNAs? (4%, 6%)
5. Please explain why RNA uses the base Uracil (U), and DNA uses the base Thymine (T). (6%)
6. What is snRNP? Please describe the roles of snRNPs in RNA splicing. (2%, 6%)
7. The ribosome has three binding sites for tRNA – the A-, P-, and E-sites. Please describe the roles of the three sites. (6%)
8. What are the cis-elements and trans-factors for transcriptional regulation? (6%)
9. Please explain the “SOS response” in bacteria. (6%)