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FACULTY OF BASIC AND APPLIED SCIENCES
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FIRST SEMESTER RESULT: 2017/2018 SESSION

BCH 315

MOLECULAR BIOLOGY OF THE GENE

3 units



Answer any 5 questions Time: 2 hrs 30 mins.

- In DNA replication, explain the role of
 - Helicase
 - DNA polymerase I
 - DNA polymerase III
 - Primase
 - Ligase
- In eukaryotic genome, what are exons and introns? Explain the physiological roles of intron.
- Write on the structure and function of the following ribonucleic acids:
 - mRNA
 - tRNA
 - rRNA
- Discuss the stages involved in DNA repair
- Write concisely on the following consequences of mutation
 - Nonsense mutation
 - Missense mutation
 - Silent mutation
 - Identify the following types of point mutation
 - $\text{GGGCCCCATA} \rightarrow \text{GGGCTCCATA}$
 - $\text{GGGCCCCATA} \rightarrow \text{GGGCCGCATA}$
 - $\text{GGGCCCCATA} \rightarrow \text{GGGCC}CATA$
- Describe the following mechanisms of genetic exchange in prokaryote
 - Transformation
 - Transduction
 - Conjugation
- Explain the wobble hypothesis
 - Write on 5 different applications of genetic engineering in science.