FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
MICROBIOLOGY DEPARTMENT
FIRST SEMESTER EXAMINATION, 2018/2019 SESSION
MICROBIAL GENETICS AND MOLECULAR BIOLOGY (MCB 415) 3 UNITS

INSTRUCTIONS: Answer any **FIVE Questions**
Time Allowed: 2 Hours

1. What roles do the following play in DNA structure?
   i. Hydrogen bonds
   ii. Phosphodiester linkages
   iii. Hydrophobic bonds
   iv. Primosome
   v. Replisome
   vi. Nucleobase

2(a). By means of a well labelled diagram explain specialized transduction and its significance in bacterial cell
2(b). Define Hfr
2(c). What are the effect of mutation on proteins

3(a). Elucidate the structure of DNA (Diagram is essential)
3(b). Compare and contrast DNA and RNA

4. Explain vertical and horizontal gene transfer with specific examples

5(a.) Define the following:
   i. Conjugation
   ii. Transduction
   iii. Transformation
   iv. plasmids
5(b). Which is the most efficient technique for gene transfer? Give reason(s) for your answer

6(a). Explain the unique characteristics of origin of replication
6(b). Differentiate between rolling cycle replication and cellular chromosome replication in bacteria
6(c). Differentiate between replication and transcription

7(a). Explain the significance of DNA
7(b). Explain the semi conservative nature DNA replication
7(c). Explain post transcriptional processing