

## JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- FEB 2019

B.Tech. (Biotech.) IV<sup>th</sup> Semester

COURSE CODE: 10B11BT413

MAX. MARKS: 15

COURSE NAME: MOLECULAR BIOLOGY

COURSE CREDITS: 04

MAX. TIME: 1.0 Hrs

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

- Q1a.** Why DNA and RNA are also known as nucleic acids? **(1 mark) (CO-I)**  
b. Whether DNA is hydrophilic or hydrophobic? Justify your answer. **(1 mark) (CO-I)**
- Q2.** Which of these DNA fragments (A and B) will have a higher melting temperature and why? **(2marks) (COI)**  
A) GCATTGACCGGAGGGAC  
CGTAACTGGCCTCCCTG  
B)GGATTTCAATTACTTAA  
CCTAAAGTTAATGAATT
- Q3.** What would be the effect on the PCR reaction if any of the following circumstances arose:  
a) there is increase in concentration of primers in the reaction?  
b) there are no dNTPs in the reaction?  
c) there is decrease in annealing temperature by 3<sup>0</sup>C from optimum annealing temperature?  
**(3 mark) (CO-II)**
- Q4.** What are the forces which stabilize the DNA secondary structure? **(3 mark) (CO-I)**
- Q5.** Describe the following terms in brief. **(5 marks) (CO-I)**  
a) Differentiate between B-DNA and Z-DNA confirmation of DNA  
b) Structural similarity and dissimilarity between DNA and RNA