

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

B.Tech.-IV Semester (Biotechnology)

COURSE CODE: 18B11BT412

MAX. MARKS: 15

COURSE NAME: Molecular Biology

COURSE CREDITS: 3

MAX. TIME: 1 Hour

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*Note: All questions are compulsory. Marks are indicated against each question in brackets.*

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- Q1. Why DNA and RNA are generally called as 'nucleic acids'? (2 mark) (COI)
- Q2. Suppose you have a genome of a bacterium, which contains the thymine 20%. How do you find the amount of cytosine, guanine and adenine (in percentage)? Also define the genetic rule by which you may justify your answer. (2 mark) (COI)
- Q3. a) Why DNA is considered more stable than RNA? (1.5 marks) (COII)  
b) What makes DNA as a stable genetic material and RNA as a material of transport of genetic information? Justify your answer with diagrammatic representation also. (1.5 marks) (COII)
- Q4. Suppose, you have a mixture of proteins of 100 kDa, 40 kDa, 20 kDa and you need to purify each of these proteins. Which of the purification technique will be employed to get these three proteins separately? (3 mark) (COII)
- Q5. Define the following with their functions in a Polymerase chain reaction. (5 mark) (COII)
- Primers
  - dNTPs
  - Taq polymerase
  - DNA template
  - Magnesium ions