

SEAT No. _____

No of printed pages: 02

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SARDAR PATEL UNIVERSITY
B.Sc. SEMESTER III EXAMINATION
Monday, 25th November 2019
2:00 pm to 5:00 pm
BIOTECHNOLOGY: US03CBIT21
FUNDAMENTALS OF BIOTECHNOLOGY

Total Marks: 70

Q.1 Multiple Choice Questions.

[10]

- i) Which of the following is the purine base of nucleic acid?
a) Cytosine b) Thymine c) Uracil d) Adenine
- ii) In double stranded DNA, if 25% of DNA is thymine what percent is cytosine?
a) 50% b) 75% c) 30% d) 25%
- iii) In DNA the glycosidic bond is present between _____.
a) Sugar & Base b) Base & Phosphate c) Base & Base d) Phosphate & Sugar
- iv) The term plasmid was first introduced by the _____.
a) Joshua Lederberg b) Johansson c) Griffith d) Sutton
- v) Hairy root disease in plant is due to _____ plasmid.
a) Ti b) Ri c) pBR322 d) F
- vi) Plasmids are molecules of _____.
a) RNA b) DNA c) Proteins d) Lipids
- vii) rRNA is a key component in the formation of _____.
a) RNase b) Ribosomes c) Ribozymes d) RNA polymerase
- viii) Which is the most abundant type of RNA in the cell?
a) rRNA b) mRNA c) tRNA d) hnRNA
- ix) DNA replication occurs during _____ phase of cell cycle.
a) S b) G₁ c) M d) G₂
- x) Apoptosis is also called as _____.
a) Programmed cell death b) Necrosis c) Senescence d) Ageing

(P.T.O.)

- Q.2 Answer the following questions in short. (Attempt any 10) [20]**
- i) Mention about the physical properties of DNA.
 - ii) Write about Nucleoside & nucleotides.
 - iii) Write about Chargaff's rule of DNA composition.
 - iv) Draw the genetic map of pUC8.
 - v) Define the term plasmid.
 - vi) Write in brief about Chloroplast DNA.
 - vii) Give the function of SnRNA & miRNA.
 - viii) Write the principle of RNA isolation by lithium chloride method.
 - ix) Write about mRNA.
 - x) Give the significance of meiosis.
 - xi) Mention about G₂ phase of cell cycle.
 - xii) What is check point in cell cycle?
- Q.3 a) Discuss in detail Harshey & Chase experiments which prove DNA as a genetic material. [05]**
- b) Write short note on different forms of DNA. [05]**
- OR**
- Q.3 a) Explain in detail Watson & Crick model of DNA. [05]**
- b) Write in detail chemical & biological properties of DNA. [05]**
- Q.4 a) Describe mitochondrial DNA [05]**
- b) Write short note on pBR322. [05]**
- OR**
- Q.4 Give the basic properties of plasmid & explain in detail about natural plasmids. [10]**
- Q.5 a) Define genetic code. Explain in detail properties of genetic code. [06]**
- b) Write in detail about the structure of tRNA. [04]**
- OR**
- Q.5 a) Discuss in detail about experimental evidence of RNA as a genetic material. [06]**
- b) Explain in detail Wobble Hypothesis. [04]**
- Q.6 Define Mitosis. Explain in detail its phases with diagram. [10]**
- OR**
- Q.6 a) Give a detail account on cyclin & cyclin dependent kinase. [06]**
- b) Write a short note on Apoptosis. [04]**

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