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No. of Printed Pages: 2

[45]

SARDAR PATEL UNIVERSITY  
S.Y.B.Sc ON DEMAND EXAMINATION, III<sup>rd</sup> Semester  
Monday, 13<sup>th</sup> June 2022, 12.00p.m to 02.00p.m  
BIOTECHNOLOGY : US03CBIT01  
[Fundamentals of Biotechnology]

NOTE- Figures in the right indicate full marks.

Maximum Marks-70

**Q.1. Multiple Choice Questions (10 marks- One Mark for Each MCQ)**

[10]

1. Which is not a forms of DNA are

- A. A form      B. C form      C. G form      D. B form

2. Hydrogen bond in DNA is present between

- A. Sugar and base      B. base and phosphate      C. Base and base      D. Phosphate and sugar

3. What is the difference between purines and pyrimidines?

- A. Purines are found in RNA while pyrimidines are found in DNA.  
B. Pyrimidines are found in RNA while purines are found in DNA.  
C. Purines contain a double ring, while pyrimidines contain a single ring backbone.  
D. Pyrimidines contain a double ring, while purines contain a single ring backbone.

4. Engulfment of particulate substance or antigen is exhibited by:

- A. Macrophages      B. B cells      C. Dendritic cells      D. All of the Above

5. Daily production of which antibody molecule is maximum:

- A. IgG      B. IgA      C. IgM      D. IgD

6. Antigenic peptides are presented to TC cells by

- A. TCR & CD3      B. CD 28      C. CTLA-4      D. MHC- Class I Molecule

7. The substances that posses antigenicity but lacks immunogenicity are:

- A. Adjuvants      B. Haptens      C. Super antigens      D. Avidins

8. Which is not an enzyme of Prokaryotic replication.

- A. Dna B      B. Dna C      C. Dna D      D. Dna G

9. During DNA replication each old DNA strand of the parent molecule serves as a template for a new strand in a daughter molecule.

- A. conservative      B. semiconservative      C. dispersive      D. none of the above.

10. The 5' end of each Okazaki fragment begins with:

- A. the same RNA primer that began synthesis on the leading strand.  
B. a DNA primer binding to the template DNA.  
C. DNA polymerase binding to the template DNA.  
D. a separate RNA primer.

**Q.2.Fill in the Blanks and True –False (01 Mark each)**

[08]

1. The bases are held together in a DNA double helix by -----.
2. DNA is the genetic material in all the known viruses (True/False).
3. The -----systems protects our body against disease-causing microbes.
4. Innate Immunity present from our birth (True/False).
- 3.----- immune-globulins makes the largest percentage in breast milk.
6. Antibodies are glycol-proteins. (True/False).
7. In DNA replication new bases are added to 3'-OH end (True/False).
8. DNA pol III holoenzyme has ----- processivity.

**Q.2. Short Question (any 10 question X 2 marks each)**

[20]

1. Describe the Wobble hypothesis.
2. Define plasmids with its function.
3. Describe the structure and function of mRNA.
4. What do you mean by acquired immunity?
5. Enumerate various components of innate Immunity?
6. What is the difference between Antigenicity and Immunogenicity.
7. Explain adjuvants and its properties in brief?
8. How haptens are different from immunogen?
9. Give a comparative account of IgM and IgE molecule.
10. What is primer? Discuss its importance.
11. Describe about the OriC for prokaryotic replication
12. Describe the termination of prokaryotic replication.

**Q.4. Long Answer Question (attempt any 4 X 08 marks each)**

[32]

1. Discuss in detail about the difference between A, B and Z form of DNA.
2. Enlist features and properties of the Watson - Crick Model of DNA.
3. Give a comparative Account of Active and Passive Immunity.
4. Differentiate between Humoral and Cell Mediated Immunity.
5. Define antigen. Enumerate various factors contributing to immunogenicity.
6. Explain the function and properties of IgG and IgA in detail.
7. Enlist any five enzymes involved in prokaryotic replication with its function.
8. Describe the elongation of prokaryotic replication.

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