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SARDAR PATEL UNIVERSITY
B.Sc. (THIRD SEMESTER)
WEDNESDAY 13TH NOVEMBER 2013
US03CBIT01 FUNDAMENTALS OF BIOTECHNOLOGY
TIME: 2.30 P.M. TO 5.30 P.M.

TOTAL MARKS: 70

NO OF PRINTED PAGES: 03

Q-1 **MULTIPLE CHOICE QUESTIONS(attempt all questions)** 10

1. **Which form of DNA is most stable form**
 - a. A-form
 - b. B-form
 - c. Z-form
 - d. C-form

2. **_____ base is not present in RNA**
 - a. Adenine
 - b. Guanine
 - c. Uracil
 - d. Thymine

3. **Innate immunity is generally present in**
 - a. Vertebrates
 - b. Pieces
 - c. Invertebrates
 - d. Arthropod

4. **The process of engulfment of extracellular solid particles from the external environment by the cells is**
 - a. Phagocytosis
 - b. Endocytosis
 - c. Pinocytosis
 - d. None of above

5. **Bombay phenotype is a disorder in people who lacks**
 - a. ABO
 - b. Rh
 - c. H
 - d. O

6. _____ helps to protect the developing foetus by crossing placenta

- a. IgA
- b. IgM
- c. IgG
- d. IgE

7. DNA polymerase was first identified by Arthur Kornberg in _____ bacteria

- a. *E.coli*
- b. *Bacillus*
- c. *Pseudomonas*
- d. All of above

8. The consensus sequence centred at 4 repeats of 9 bp sequence at 'ori C' are

- a. TTATCCACA
- b. TTAGCTTGC
- c. AATAGGAT
- d. TTATCAACA

9. The new strand is synthesized in _____ direction

- a. 3'----5'
- b. 5'----3'
- c. 2'---3'
- d. None of above

10. The domain of which immunoglobulin bind to epitope are

- a. Framework region
- b. Hinge region
- c. Variable region
- d. Constant region

Q-2

ANSWER SHORT QUESTIONS (Attempt any ten)

20

1. Sketch structure of Adenine.
2. Define Genetic Code.
3. Enlist Chargaff's rule.
4. Discuss role of class I and class II MHC molecules.
5. Define Immunity and give two types of immune response.
6. Why immunity appears to be short lived in infections of influenza and common cold.
7. What are epitopes and give its significance.
8. Why type "O" individuals are considered as universal donor.

9. Comment "All antigens are immunogens but all immunogen are not antigen".

10. What are okazaki fragments?

11. Explain significance of Ter-Tus complex.

12. Define Ori C site.

Q-3 A Discuss in detail Watson and Crick model of DNA. 05

B Describe clover leaf structure of t-RNA. 05

OR

Q-3 A Explain Genetic code and discuss Wobble hypothesis. 06

B Define Plasmid and give classification of Plasmid. 04

Q-4 A Discuss in detail about nonspecific host defence mechanism. 06

B Discuss different types of acquired immunity. 04

OR

Q-4 A Give an account on cell mediated and humoral immune response. 06

B Discuss various events of inflammatory responses. 04

Q-5 A Define antibody. Describe the detailed structure of immunoglobulin with a neat and labelled diagram. 06

B Write a note on ABO blood group system and also give its applications. 04

OR

Q-5 A Discuss various properties and functions of immunoglobulin. 05

B Give a detailed account on general properties of antigens. 05

Q-6 A With a neat and labelled diagram explain process of DNA replication in prokaryotes. 10

OR

A Design a experiment to prove that DNA replication follows semiconservative mode. 10

BEST OF LUCK