

[80/A-26]

SEAT No. _____

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Sardar Patel University

Sy.B.sc. Semester examination-2019

B.Sc^{3rd} Semester,

Subject – Biotechnology

Course no. US03CBIT01

Date - 22.11.19, Friday

Fundamentals of Biotechnology-I

Time – 3hrs (2PM-5PM)

Marks-70

NOTE- Figure in the right indicates marks.

All questions are compulsory. Make necessary diagram wherever needed.

Q.1. Multiple Choice Question (MCQ). Select correct answer from given MCQ. (10marks)

1. a Purines and pyrimidine are component of-
- (A) Proteins (B) Carbohydrates
(C) DNA (D) Fatty acids
1. b Which of the following bases are only present in RNA
- (A) Thymine (B) Uracil
(C) Guanine (D) Adenine
1. c Extra chromosomal genetic element of bacteria are commonly called-
- (A) Plasmid (B) Phagemid
(C) Bacteriophage (D) Episome
1. d The immune system is made up of-
- (A) Humoral system
(B) Humoral and cell mediated systems
(C) Humoral and fibrous systems
(D) Antigen induced antibodies
1. e Various cells of immune response are produced in-
- (A) Liver (B) Spleen
(C) Bone marrow (D) Bone marrow and thymus
1. f A substance produced by host in response to an infection or foreign structure is
- (A) Antibody (B) Antigen
(C) Phytotoxin (D) Hormone
1. g. Antibodies that function in innate immunity are
- (A) IgM (B) IgE
(C) IgA (D) IgD
1. h. Semi conservative replication of DNA was demonstrated by
- (A) Khorana and Jolly (B) Watson and Crick
(C) Taylor and Kornberg (D) Meselson and Stahl
1. i DNA replication proceeds in
- (A) 5'→3' direction (B) 3'→5' direction
(C) 3' direction only (D) 5' direction only
1. j Two okazaki fragment are joined by-
- (A) DNA ligase (B) DNA Gyrase
(C) Topoisomerase (D) DNA Polymerase I

①

P.T.O

Q.2. Short questions (2 marks each) attempt any ten

(2x10=20marks)

- [1] What is Chargaff's base pair rule?
- [2] Enlist the properties of genetic code.
- [3] Write brief note on functions of tRNA.
- [4] Give the importance of immune response
- [5] Write brief note on advantages of innate immunity.
- [6] Enlist the characteristic features of adaptive immunity.
- [7] Define Hapten.
- [8] What is the significance of blood group in humans?
- [9] Enlist various classes of antibody.
- [10] What is ori C?
- [11] Write a brief note on significance of DNA replication.
- [12] What are proof reading activities of DNA replication?

- Q3.a. Give the comparative account of different forms of DNA. [5]
Q3.b. Write notes on structure and function of ribosomal RNA. [5]

OR

- Q.3.a. Discuss the properties of any natural plasmid with example. [5]
Q.3.b. Write note on structure and functions of messenger RNA. [5]

- Q.4.a. Explain active immunity and its types. [5]
Q.4.b. Give the comparative account of humoral and cell mediated immunity. [5]

OR

- Q.4.a. Explain passive immunity and its types. [5]
Q.4.b. Give the comparative account of primary and secondary immune response. [5]

- Q.5.a. Discuss the classes and properties of antigen. [5]
Q.5.b. Write notes on function of various classes of antibody. [5]

OR

- Q.5a. With the help of labeled diagram explain the structure of antibody. [5]
Q.5.b. Write notes on ABO system of blood groups. [5]

- Q.6. a. Enlist different proteins and their role in DNA replication. [6]
Q.6.b. How DNA synthesis occurs at leading strand? Explain diagrammatically. [4]

OR

- Q.6.a. Explain the process of rolling circle mode of replication with neat diagram. [6]
Q.6.b. Write notes on structure of DNA polymerase III. [4]