11/A7 SEAT No._____ No. of Printed Pages : 02

Sardar Patel University

B.Sc- Semester examination-2019

B.Sc IV Semester — **Subject – Biotechnology**

Course no. US04CBIT01 — **Date - 05.04.2019** Friday

Time – 3hrs (10AM-1PM) — **Marks-70**

Fundamentals of Biotechnology-II

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. Transcription involving transfer of genetic information from :

(A) DNA to DNA (B) DNA to m-RNA

(C) DNA to t-RNA (D) m-RNA to t-RNA

1.b.Select the correct enzyme required for transcription

(A) RNA ase (B) Endonuclease

(C) RNA polymerase (D) DNA polymerase

1.c Regulated unit of cluster of gene is termed as

(A) Operon (B) Split gene

(C) Operator gene (D) Pseudogenes

1.d. During translation AUG codes for methioinine at

(A) The end of a polypeptide chain

(B) The start of a polypeptide chain

(C) The start as well as the interior of a polypeptide chain

(D) None of the above

1.e Which of the following cofactor is essential for activityof type II restriction enzymes

(A) Mg2+ (B) ATP (C) ATP and Mg2+ (D) ATP and SAM

1.f. Restriction enzymes are important in genetic engineering because they can use for

(A) Construction of rDNA (B) DNA synthesis

(C) DNA repair (D) RNA synthesis

1.g. Restriction enzymes are unique feature of

(A) Bacterial cell (B) Yeast cell

(C) Plant cell (D) Animal cell

1..h. Which one of the following is not a lymphocyte?

(A) B-Cell (B) T-cell

(C) NK-Cell (D) Mast-cell

1.i. Which of these cells is belongs to antigen presenting cell (APC)?

(A) Macrophages (B) Dendritic cells

(C) B-cells (D) All of these

1.j. Antigen-antibody interaction are also called as:

(A) Epitope- Paratope interaction

(B) Epitope- Epitope interaction

(C) Paratope- Paratope interaction

(D) Paratope- hapten interaction

Q.2. Short questions (2 marks each) attempt any ten **(2x10=20marks)**

[1] What do you understand by the term gene?
[2] Write a brief notes on structure of prokaryotic promoter.
[3] Enlist structural components of lac operon.
[4] Define protein synthesis.
[5] Write short notes on importance of prokaryotic translation.
[6] How the process of translation terminated?
[7] What is restriction endonuclease?
[8] Give the important application of restriction enzymes in genetic engineering.
[9] What is isoschzomers?
[10] Write notes on features of antigen antibody interactions.
[11] Enlist various types of cells that control immune system.
[12] What is the major function of secondary lymphoid organs?

Q3.a. Explain the mechanism of transcriptional elongation with neat diagram. [5]
Q3.b.Discuss positive regulation of lac operon. [5]

OR

Q.3.a. Explain types and process of transcriptional termination. [5]
Q.3.b.Write notes on structural component of tryp operon. [5]

Q.4.a. Enlist and explain various requirements for translation. [6]
Q.4.b. How amino acid are activated for protein synthesis. [4]

OR

Q.4.a Write detail notes on initiation of prokaryotic translation. [6]
Q.4.b.How the process of protein synthesis terminated. [4]

Q.5.a. Discuss the properties of type II restriction enzymes with suitable examples. [5]
Q.5.b .Write notes on principle of nomenclature of restriction enzymes with examples. [5]

OR

Q.5.a.Give the comparative account between type I type II and III restriction enzymes. [5]
Q.5.b. What is target site of restriction enzyme? Explain with examples. [5]

Q.6. a. Write notes on lymphocytes, their types and functions. [5]
Q.6.b. Give a comparative account of agglutination and precipitation reactions. [5]

OR

Q.6.a Discuss precipitation reactions and their types [5]
Q.6.b. Write a short note on primary lymphoid organs. [5]

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