

SEAT No. \_\_\_\_\_

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[84/A45]

Sardar Patel University  
B.Sc- Semester examination-2017

B.Sc IV<sup>th</sup> Semester  
Course no. US04EMBI02  
Time -2:00 to 5:00 pm

Subject – Molecular biology-II  
Date - 13.04.2017 (Thursday)  
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 The sigma factor of RNA polymerase plays a role of
  - (A) Recognition of promotor sequences
  - (B) Elongation of growing mRNA
  - (C) Stabilization of unwound DNA
  - (D) Unwinding of double helix of DNA
- 1.b TATA box are found is found in all
  - (A) Terminator
  - (B) Repressors
  - (C) Inducer
  - (D) Promoters
- 1.c. RNA polymerase synthesizes
  - (A) DNA from DNA
  - (B) RNA from DNA
  - (C) RNA from RNA
  - (D) DNA from RNA
- 1.d. mRNA are synthesized by
  - (A) RNA Polymerase I
  - (B) RNA Polymerase II
  - (C) RNA Polymerase III
  - (D) RNA Polymerase IV
- 1.e Poly A tail is present in
  - (A) mRNA at 5' end
  - (B) mRNA at 3' end
  - (C) tRNA
  - (D) rRNA
- 1.f. Translation is the
  - (A) Synthesis of mRNA from DNA
  - (B) Synthesis of DNA from RNA
  - (C) Synthesis of protein from mRNA
  - (D) Synthesis of protein from lipids
- 1.g. HSP 60 and 70 are proteins responsible for
  - (A) Activation of amino acids
  - (B) Protein folding
  - (C) Elongation of protein synthesis
  - (D) Termination of protein synthesis
- 1.h. In prokaryotes the first amino acids in polypeptide chain is
  - (A) Methionine
  - (B) Glycine
  - (C) Proline
  - (D) Tryptophan
- 1.i Operon concept was given by
  - (A) Jacob and Monad
  - (B) Watson and crick
  - (C) Barbara Mc Clintock
  - (D) Suttan and Boveri
- 1.j Expression of prokaryotic operons leads to generation of
  - (A) Monocistronic mRNA
  - (B) Polycistronic mRNA
  - (C) Monocistronic tRNA
  - (D) Polycistronic r RNA

P.T.O

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

**(2x10=20marks)**

- [1] What is transcription?
- [2] Write a brief notes on type of transcriptional termination.
- [3] Write notes on requirements of transcription process.
- [4] Define post transcriptional modification.
- [5] Enlist various agents which inhibit the process of transcription.
- [6] What do you mean by splicing?
- [7] How you will inhibit protein synthesis?
- [8] Enlist the factors which effect translation process.
- [9] What is role of tRNA in translation?
- [10] What do you mean by gene regulation?
- [11] Define gene expression.
- [12] What is constitutive genes?

Q3.a. Explain the elongation process of transcription with neat diagram. [5]

Q3.b. Write notes on structure and properties of prokaryotic RNA polymerase. [5]

**OR**

Q.3.a. Explain the initiation process of transcription with neat diagram. [5]

Q.3.b. Write notes on types, structure and function of prokaryotic promoters. [5]

Q.4.a. Explain the process of post transcriptional modification of mRNA. [5]

Q.4.b. Writes notes on various classes of eukaryotic RNA polymerase. [5]

**OR**

Q.4.a. Give the difference and similarity between prokaryotic and eukaryotic transcription. [5]

Q.4.b. Explain post transcriptional modification of rRNA. [5]

Q.5.a. What do you mean by amino acid activation? Explain. [5]

Q.5.b. Give the importance of post translational modification of proteins. [5]

**OR**

Q.5.a. Explain elongation process of translation in detail. [5]

Q.5.b. Enlist the various process of post translational modification of proteins. [5]

Q.6. What is Lac operon? Explain Lac operon in detail with suitable diagram. [10]

**OR**

Q.6. How Lac operon are positively and negatively regulated? Explain in detail. [10]

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