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PAR-003-1015031 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

October / November - 2018

Biochemistry : Paper - 503

(Molecular Biology & Recombinant DNA Technology)

Faculty Code : 003

Subject Code : 1015031

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Write the correct answer for the questions : **4**

(1) Define: DNA sequencing

(2) What is the driving force for DNA synthesis ?

(3) What is proof reading function of DNA Pol I ?

(4) Give the two unique characteristics of DNA replication.

(b) Write the answer in brief : (any **1** out of 2) **2**

(1) Give the role of telomerases.

(2) Why is it necessary to unwind the DNA helix in the replication process ?

(c) Write the answer in detail : (any **1** out of 2) **3**

(1) Explain briefly about Maxam-Gilbert method of sequencing.

(2) Discuss in detail about eukaryotic DNA polymerases.

(d) Write the short note in detail : (any **1** out of 2) **5**

(1) Write in detail about the chemistry of DNA synthesis.

(2) Describe the DNA replication initiation at oriC in E. coli.

2 (a) Write the correct answer for the questions : **4**

(1) What is Template DNA strand ?

(2) Give the role of rho protein.

(3) Which molecule helps in high level of transcription ?

(4) Write any two inhibitors of transcription.

(b) Write the answer in brief : (any **1** out of 2) **2**

(1) Write about the structure of eukaryotic ribosomes.

(2) Briefly write about Promoters of E. coli genes.

(c) Write the answer in detail : (any **1** out of 2) **3**

(1) Draw well labelled diagram of Eukaryotic ribosomal DNA repeat unit.

(2) Draw well labelled diagram of Spliceosomes.

(d) Write the short note in detail : (any **1** out of 2) **5**

(1) With well labelled diagrams, explain about initiation and elongation of transcription in E. coli.

(2) Discuss in detail post-transcriptional modification of mRNA in eukaryotes.

3 (a) Write the correct answer for the questions : **4**

(1) Why regulation of gene expression is done ?

(2) Give the significance of Kozak sequence ?

(3) What is N-linked oligosaccharide ?

(4) Write the two functions of peptidyl transferase.

(b) Write the answer in brief : (any **1** out of 2) **2**

(1) What do you understand by charging of tRNA ?

(2) List the events of protein termination.

(c) Write the answer in detail : (any **1** out of 2) **3**

(1) Discuss the salient features of genetic code.

(2) How tryptophan works as a corepressor for trp operon ?

(d) Write the short note in detail : (any **1** out of 2) **5**

(1) With well labelled diagram explain elongation phase in prokaryotic translation.

(2) Discuss about negative control of lac operon.

4 (a) Write the correct answer for the questions : **4**

(1) Name the different carcinogen.

(2) If nucleotide is added to DNA sequence, mutation is known as _____.

(3) What is Mutation ?

(4) What is the effect of deamination ?

(b) Write the answer in brief : (any **1** out of 2) **2**

(1) Differentiate between forward and reverse mutation.

(2) What do you mean by SOS repair ?

(c) Write the answer in detail : (any **1** out of 2) **3**

(1) Explain suppressor mutation.

(2) Why liver extract is added in Ames test ?

(d) Write the short note in detail : (any **1** out of 2) **5**

(1) How mutation can be repaired by different way? Explain in detail.

(2) Discuss different material which leads to mutation.

5 (a) Write the correct answer for the questions : **4**

(1) Define: Ligation

(2) What do you mean by electroporation ?

(3) What is isoschesomere ?

(4) Write the examples of DNA library.

(b) Write the answer in brief : (any **1** out of 2) **2**

(1) Explain mechanism of restriction endonuclease.

(2) Give the criteria of plasmid vector.

(c) Write the answer in detail : (any **1** out of 2) **3**

(1) Write the three different methods for bacterial gene transfer.

(2) Explain steps involved in PCR.

(d) Write the short note in detail : (any **1** out of 2) **5**

(1) Define: Cloning and discuss in brief.

(2) Give the Applications of genetic engineering.
