



UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – II
Supplementary Examination - 2018

Roll No.

Subject: Biochemistry-II
PAPER: A (Metabolism)

TIME ALLOWED: 3 Hrs.
MAX. MARKS: 40

NOTE: Attempt any FOUR questions. All questions carry equal marks.

1. Write a comprehensive note on the biosynthesis of essential and non-essential amino acids
2. Write a note on chemical nature and synthesis of purine ribonucleotides.
3. Discuss the glycolytic pathway, its bioenergetics and significance
4. Explain the digestion, absorption and transport of lipids
5. Write a detailed note on pathway of oxidative phosphorylation
6. Explain the oxidation of fatty acids and their regulation
7. Write a comprehensive note on muscle contraction
8. What are ketone bodies? Outline the steps of formation and utilization of ketone bodies



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Supplementary Examination – 2018

Roll No.

Subject: Biochemistry-II
PAPER: B (Molecular Biology)

TIME ALLOWED: 15 Min.
MAX. MARKS: 7

Attempt this Paper on this Question Sheet only.

Please encircle the correct option. Each MCO carries 1 Mark.
This Paper will be collected back after expiry of time limit mentioned above.

Q. No. 1: Select the best option. (7)

1. DNA polymerase of *T. aquaticus* is preferred to that of *E. coli* in PCR because
 - a. It replicates DNA more efficiently
 - b. It doesn't require primers
 - c. It is not denatured at the melting temperature of DNA
 - d. It doesn't cause errors in replication
2. A point mutation results from
 - a. Substitution of a base
 - b. Insertion of a base
 - c. Deletion of a base
 - d. All of these
3. The shape of a DNA molecule is
 - a. Double helix
 - b. triple helix
 - c. no helix
 - d. linear
4. If a DNA molecule contains 20% A, approximately what percentage of G is present?
 - a. 20%
 - b. 40%
 - c. 30%
 - d. 60%
5. The codon which serves as translation start signal is
 - a. AUG
 - b. UAG
 - c. UGA
 - d. UAA
6. The first protein synthesized by recombinant DNA technology was
 - a. Streptokinase
 - b. Human growth hormone
 - c. Tissue plasminogen activator
 - d. Human insulin
7. Transcription and translation of a gene composed of 30 nucleotides would form a protein containing no more than ___ amino acids.
 - a. 10
 - b. 15
 - c. 60
 - d. 90



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Roll No.

Subject: Biochemistry-II
PAPER: B (Molecular Biology)

TIME ALLOWED: 2 Hrs. & 45 Min.
MAX. MARKS: 28

Attempt this Paper on Separate Answer Sheet.

Attempt any FOUR Question All questions carry equal marks

- Q.2** Describe the process of translation in Prokaryotes. Also discuss the roles of the Shine-Delgarno Sequence, codons, anticodons, the small ribosomal subunit, the large ribosomal subunit, amino acids, peptide bonds, and releasing factors in translation. (7)
- Q.3** Explain the process of transcription in Prokaryotes. Include in your answer, a discussion of the role of the promoter, a detailed description of initiation, elongation and Rho-dependent and Rho-independent termination of transcription. (7)
- Q.4 a)** What is replication fork? Also discuss the role of Okazaki fragments and DNA gyrase in replication process of prokaryotes. (3)
- b)** Name and differentiate between three types of DNA (4)
- Q.5 a)** What are different types of RNA? Discuss the role of tRNA in protein synthesis. (3)
- b)** Discuss the key primer designing rules for PCR. Also enlist applications of PCR. (4)
- Q.6 a)** Discuss the principle and applications of ultrafiltration. (3)
- b)** Describe the process of DNA replication in eukaryotes. (4)
- Q.7 a)** Discuss the principle and applications of ultrafiltration. (3)
- b)** Describe the application of UV/Visible spectroscopy for analysis of proteins. (4)
- Q. 8** Write a note on post transcriptional processing. (7)