



Note: Attempt all questions. Answer Part-I and Part-II in separate answer books. All part of a question should be answered together.

PART - I

PAPER CODE: 2312130003

Q.1 Long Answer Question

- Describe heme biosynthesis
- Compare and contrast major features of porphyrias.

7 + 8 = 15 Marks

Q.2 Short Notes Questions (within 500 words)

- Describe DNA repair mechanism.
- Define and classify tumour markers. Comment on their applied aspect.
- Describe role of P53 in cancer biology.

(3x 5 = 15)

Q.3 Short Answer Question (within 100 words)

- IgA.
- Bence Jones protein.
- Fibronectin.
- Chargaff's rule.
- Write two inhibitors of transcription in prokaryotes.

(5x 2 = 10 Marks)

Q.4 Multiple Choice Question

(10 x 1 = 10 Marks)	
1 Normal pH of human blood is: a) 7.25 to 7.85 ☒ b) 7.35 to 7.45 c) 7.45 to 7.50 d) 6.8 to 7.2	2 Lesch Nyhan syndrome is due to deficiency of: ☒ a) HGPRTase b) PRPP synthetase c) Adenosine Deaminase d) Xanthine Oxidase
3 Abnormal collagen structure is seen in all of the following EXCEPT: a) I-cell disease ☒ b) Osteogenesis imperfecta c) Menke's disease d) Ehlers-Danlos syndrome	4 All are components of innate immunity except: a) skin ☒ b) B cell c) Macrophages d) NK cells
5 The selenocysteine is modified form of: a) Serine ☒ b) Cysteine c) Methionine d) Glycine	6 A silent mutation is possible due to the following characteristics of the genetic code: a) Universality b) Unambiguity c) Non-overlapping ☒ d) Degeneracy
7 Secretory proteins are synthesised by: a) ribosomes on nuclear membrane ☒ b) ribosomes on endoplasmic reticulum c) free ribosomes d) none	8 The sickle cell disease is due to: a) T to A substitute ☒ b) A to T substitute c) A to U substitute d) U to A substitute
9 In RT-PCR test for COVID19 the metal required is: a) Mn ☒ b) Mg c) Zn d) Cr	10 ABG test results pH 7.2; pCO ₂ = 60mm Hg; ☒ a) Respiratory acidosis b) Metabolic acidosis c) Respiratory alkalosis d) Metabolic alkalosis



Q.1 Long Answer Question

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- What is genetic code?
- Describe properties of genetic code.
- Write short note on mutation on gene level.

Q.2 Short Notes Questions (within 500 words)

(3 x 5 = 15 Marks)

- tRNA.
- Metabolic role of glycine.
- Proline is alpha-helix breaker, Justify.

Q.3 Short Answer Questions (within 100 words)

(5 x 2 = 10 Marks)

- Soret peak.
- Van den Bergh's test.
- Catabolic product of pyrimidine.
- Branch chain amino acids.
- Laboratory test for phenyl ketonuria.

Q.4 Multiple Choice Questions

(10 x 1 = 10 Marks)

1 Which of the following radiations are mutagenic? a) X-rays b) γ-rays c) UV rays d) all the above	2 High anion gap acidosis does not occur in: a) Diabetic ketoacidosis b) Lactic acidosis c) Renal failure d) Renal tubular acidosis
3 The ratio of the amount of nitrogen retained in the body to the nitrogen absorbed is called a) Biological value b) Net protein utilization c) Protein efficiency ratio d) None of the above	4 The separation of volatile substances is carried out by a) Ion exchange chromatography b) Thin layer chromatography c) Gas liquid chromatography d) ALL
5 Cells which no longer divide remain in which phase of cell cycle? a) G ₀ b) G ₁ c) S phase d) prophase	6 The shape of oxygen dissociation curve of Hb is: a) Parabola b) Sigmoid c) Hyperbola d) Circular
7 Monoclonal antibodies are synthesized using: a) DNA fingerprinting b) Immunoelectrophoresis c) Hybridoma technology d) Fluorescence in situ hybridization	8 Xeroderma pigmentosum is due to defect in: a) Mismatch repair b) Direct repair c) Base excision repair d) Nucleotide excision repair
9 All of the following are prion diseases except: a) Creutzfeldt-Jakob disease b) Kuru c) Intermittent Insomnia d) Chronic wasting disease	10 Amber codon is: a) UAA b) UAG c) UGA d) UGG