Q.P Code **Reg. No.**

PG Degree Regular/Supplementary Examinations in Biochemistry (M.D)

Paper III – Molecular Biology, Molecular and Genetic aspects of Cancer, Immunology and Environmental Biochemistry

Time : Three Hours **Maximum : 100 Marks**

Essay: **(20)**

1. Classify genetic disorders with suitable examples and explain their underlying mechanisms in the causation of diseases

Short Essays **(8 x10 = 80)**

2. Apoptosis
3. Innate Immunity and compliment system
4. Trafficking and sorting of proteins
5. Biochemistry of carcinogenesis
6. Discuss eukaryotic end replication and its implications for health and disease
7. Enumerate the types of stem cells and discuss the ethical issues related to their use in medicine
8. A 50-year-old patient undergoes a kidney transplant. Two weeks later, he develops decreased urine output and graft tenderness. Laboratory tests indicate rising serum creatinine levels.
   a) Based on the clinical scenario, identify the likely type of graft rejection
   b) Explain the immunological mechanisms involved, diagnostic features, and management strategies
9. An industrial worker of a battery unit presented with complaints of abdominal pain, loss of appetite and metallic taste since past few weeks also complained of headache and was irritable. On examination pallor++ and had Burton's line along the gum. His urine had deepened the colour when exposed to light.
   a. Identify the condition this patient is suffering from.
   b. Explain the biochemical basis of:
      i. Burton's line ii) Anaemia iii) Darkening of urine on exposure to light
   c. List laboratory tests useful for diagnosis of this condition
   d. Discuss the metabolic pathway affected by this industrial toxin