

**Time: 3 Hours (Cell Biology, Genetics, Evolution, Zoogeography) Max. Marks:70**

**Instructions:** (1) Attempt FIVE questions in all selecting at least ONE question from each section.. (2) Draw maps and diagrams wherever necessary. (3) All questions carry equal marks.

### **Section - A (Cell Biology)**

- Q1. Describe in detail Ultra Structure, type and functions of Endoplasmic Reticulum.
- Q2. Write short notes on any TWO of the following:  
(i) Plasma Membrane (ii) Role of RNA (iii) Gene Expression

### **Section - B (Genetics)**

- Q3. Describe the role of X-Chromosome in Sex-Linked Inheritance with particular reference to sex linked traits.
- Q4. Write short notes on any TWO of the following:  
(i) Bacterial Genome (ii) Genetic Map (iii) Mendel's Law of Inheritance

### **Section - C (Evolution)**

- Q5. Describe the theory of organic evolution by natural selection and also write objection of this theory.
- Q6. Write short notes on any TWO of the following:  
(i) Connecting Links (ii) Vestigial Organs (iii) Fossils

### **Section - D (Zoogeography)**

- Q7. Describe in detail Hoofed and Carnivorous Mammals of Pakistan.
- Q8. Discuss in detail Zoogeographical fauna of Neartic Region.
- Q9. Write short notes on any TWO of the following:  
(i) Physical Barriers (ii) Effect of Ice Age (iii) Sindh Ibex