

**5/H-63 (vi) (Syllabus-2015)**

**2019**

**( October )**

**ZOOLOGY**

**( Honours )**

**SIXTH PAPER**

**( Cell and Molecular Biology and Genetics )**

**Marks : 56**

**Time : 3 hours**

*The figures in the margin indicate full marks  
for the questions*

**Answer Question No. 1 which is compulsory and  
any four from the rest**

**1. Write in brief on any three of the following :**  
**4×3=12**

- (a) Haemophilia**
- (b) Fine structure of genes**
- (c) Dosage compensation**
- (d) Cytokines**
- (e) Kappa particles**

**2. What is lac operon ? Discuss the mechanism  
of regulation of the lac operon.**  
**2+9=11**

**( Turn Over )**

3. Describe the DNA damage and repair mechanisms with suitable diagrams. 11
4. (a) Explain the cytogenetic basis of Down's syndrome and phenylketonuria in human. 6  
 (b) Explain with suitable example the process of sex-linked inheritance in *Drosophila*. 5
5. (a) What do you understand by MHC? Discuss the structural and functional characteristics of MHC Class I and Class II antigens. 6  
 (b) Discuss the mechanism of antigen-antibody reaction. 5
6. (a) Explain the principle and application of ion-exchange chromatography. 5  
 (b) Compare light microscope with electron microscope. Discuss the significance of electron microscope in biology. 6
7. What is transcription? State the different steps of transcription mechanism in prokaryotes.  $2+9=11$
8. Write short notes on any two of the following :  $5\frac{1}{2}\times 2=11$ 
  - (a) Sex determination in man
  - (b) Immunoglobulins
  - (c) Transposons

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