

This question paper contains 4 printed pages.]

Your Roll No. ....

1347-A

A

**B.Sc. (Hons.)/II**  
**ZOOLOGY—Paper VI**  
**(Cell Biology)**  
**(OC : Admissions of 2003 and before)**

Time : 3 Hours

Maximum Marks : 55

*(Write your Roll No. on the top immediately  
on receipt of this question paper.)*

*Attempt five questions in all.*

*Question No. 1 is compulsory.*

1. (a) Distinguish between the following :
- (i) Centromere and Kinetochore
  - (ii) Prokaryote and Eukaryote
  - (iii) Heterochromatin and Euchromatin
  - (iv) Peroxisome and Lysosome
  - (v) Microtubules and Microfilaments
  - (vi) Feulgen reaction and PAS reaction

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[P.T.O.]

(b) Comment on the importance of :

- (i) Chromophore
- (ii) Cell-free system
- (iii) Human Y-chromosome
- (iv) Nucleotide ligase
- (v) Nucleolar organizer
- (vi) Formaldehyde
- (vii) Glycophorin

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(c) Mention the best known contribution of the following scientists :

- (i) George Palade
- (ii) Barbara McClintock
- (iii) Hargobind Khorana
- (iv) Robert Holley

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(d) Name the organelles for which the following enzymes can be used as markers :

- (i) Glucose-6-phosphatase
- (ii) Acid phosphatase
- (iii) Cytochrome oxidase
- (iv) 5'-Nucleotidase
- (v) Glycosyl transferase
- (vi) Uric acid oxidase

1½

- (e) Define :
- (i) Karyotype
  - (ii) Dyncin arm
  - (iii) Polyteny 1½
2. (a) Describe the salient features of the Fluid Mosaic Model of plasma membrane. 4½
- (b) Comment on the role of the Golgi complex in the process of cell secretion. 4½
3. Describe the structure and functions of the mitochondria. 9
4. (a) Discuss the role of lysosomes in organ regression and phagocytosis. 4½
- (b) Describe the use of radio isotopes in autoradiography in Biology. 4½
5. Comment briefly on :
- (a) Nucleosome model of chromatin fibre organization 4½
  - (b) Regulation of gene action in prokaryotes 4½
6. Describe the process of transcription and translation during protein synthesis in bacteria. 12