

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS—UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours

Maximum : 80 Marks

A. Answer *all* questions. Each question carries 1 mark :

- 1 Gaucher's disease is an example of _____ recessive mutation.
- 2 In a mutation a pyrimidine base is changed by another pyrimidine base is called _____.
- 3 Baldness in human is an example of _____ trait.
- 4 All the genes in a single chromosome that are inherited together is called _____.
- 5 Skin colour in man is an example of _____ inheritance.
- 6 Name the chemical which inhibit the polymerization of tubulin to form spindle fibers.
- 7 Movement of cancer cells to distant part of the body from its original site is known as _____.
- 8 Give one example for vital stain.
- 9 Living cells are usually observed by _____.
- 10 Sodium - Potassium pump is an example of _____ transport.

(10 × 1 = 10 marks)

B. Answer any *ten* questions. Each question carries 2 marks :

- 11 Mention any *four* functions of lysosome.
- 12 Differentiate between leptotene and zygotene.
- 13 Why lysosomes are called suicidal bags ?
- 14 Differentiate facultative and constitutive heterochromatin.
- 15 What is necrosis and what are the causes of necrosis ?
- 16 Write the principle of fluorescence microscopy.
- 17 Explain erythroblastosis foetalis.
- 18 Describe the occurrence and structure of lamp brush chromosome.
- 19 What is euphenics ?

Turn over

- 20 Write the chromosomal anomaly and abnormal phenotype features of Klinefelter's syndrome.
- 21 What are holandric genes ? Give one example.
- 22 What is fixation in histology ? Write the composition of aqueous Bouin's fixative.

(10 × 2 = 20 marks)

C. Answer any *five* questions. Each question carries 6 marks :

- 23 Explain the mechanism of apoptosis.
- 24 Give a detailed account on general characteristics of cancer cells.
- 25 Explain GERL concept.
- 26 Explain with illustrations of the various modes of passive transport of molecules across the plasma membrane.
- 27 Compare the principle and uses of light microscope and electron microscope.
- 28 Describe multiple alleles with reference to human blood group.
- 29 Give an account of any *four* disorders associated with autosomal gene mutations in humans.
- 30 What is linkage map ? With suitable example illustrate how a linkage map is constructed ?

(5 × 6 = 30 marks)

D. Answer any *two* questions. Each question carries 10 marks :

- 31 Give a detailed account on prophase I of meiosis and compare it with mitotic prophase. Add a note on the significances of mitosis and meiosis.
- 32 Describe various mechanism of sex determination, citing examples for each type.
- 33 Define mutation. Mention the different kinds of mutation. Add a note on its significance.
- 34 With suitable diagram describe the structure, chemical composition and functions of plasma membrane.

(2 × 10 = 20 marks)