

D 70370

(Pages : 2)

Name _____

Reg. No. _____

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2019

(CUCBCSS—UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours

Maximum : 60 Marks

Part A

I. One word questions. Answer *all* questions. Each question carries 1 mark :

- 1 The movement of water molecules from an area of high concentration to an area of low concentration through semipermeable membrane is known as _____.
- 2 In which stage of the cell cycle DNA synthesis is carried out ?
- 3 Large puffs of polytene chromosomes are called _____.
- 4 Give an example for mitochondrial stain.
- 5 Write the chromosomal anomaly of Klienfelders syndrome.
- 6 Give an example for holandric genes.
- 7 Write the antigen present in A-blood group person that determines his blood group.
- 8 PAS technique is used for the demonstration of _____.
- 9 Source of illumination in transmission electron microscope.
- 10 The phenomenon in which a phenotypic trait reappears in an organism after a period of absence is termed as _____.

(10 × 1 = 10 marks)

Part B

II. Short answer questions. Answer any *ten* questions. Each question carries 2 marks :

- 11 Mention the features of facilitated diffusion.
- 12 Write the genetic basis of sickle anemia.
- 13 What are vital stains ? Give any two examples.
- 14 What is the principle of fluorescent microscopy ?
- 15 Differentiate between positive and negative eugenics.
- 16 Write short notes on GERL Concept.

Turn over

- 17 What is nucleosome and write its composition.
- 18 Differentiate between euchromatin and heterochromatin.
- 19 Write short notes on human karyotype.
- 20 Write short notes on physical mutagens.
- 21 Write short notes on erythroblastosis foetalis.
- 22 Write the composition of Carnoy's fixative.

(10 × 2 = 20 marks)

Part C

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

- 23 Explain the principle, types and applications of electron microscopy.
- 24 Describe the structure and functions of Golgi bodies.
- 25 Give an account on different stages of prophase I of meiosis.
- 26 Explain the mechanism of apoptosis.
- 27 Explain the inherent disorders associated with phenylalanine metabolism.
- 28 What are linkage groups ? Explain the chromosome theory of linkage and linkage types.
- 29 What are mutagens and what are the different types of mutagens ? Add a note on CIB method for the detection of mutation.
- 30 What are the characteristics of multiple alleles ? Explain with suitable example from human.

(5 × 6 = 30 marks)

Part D

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

- 31 With suitable diagram describe the fluid mosaic model of plasma membrane and explain the various types of transmembrane transport.
- 32 Explain the structural organization of chromatin and chromosomes. Add a note on giant chromosomes.
- 33 With suitable examples explain gene interaction.
- 34 Explain the various mechanisms of sex determination.

(2 × 10 = 20 marks)