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 : 80 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 Klienfelters 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 feotalis.

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

IV. 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)