D 11191 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS–UG)

Zoology

ZOL 5B 08—CELL BIOLOGY AND GENETICS

Time : Three Hours Maximum : 80 Marks

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

1 Lesch-Nyhan syndrome is produced by mutation in the HPRT gene located on the ——— chromosome.

2 In a gene mutation a pyrimidine base changed by a purine base is called ———.

3 Colour blindness is an example of ——— inheritance.

4 'O' blood group possess ——— antigen.

5 Reappearance of an ancestral character in an individual is known as ———.

6 Cancer arises from epithelial tissue is known as ———.

7 The cross over point where *two* homologous non-sister chromatid exchange genetic material during meiosis is called ———.

8 Highly condensed chromatin part of chromosome is called ———.

9 For the study of mitosis root tips are usually fixed in ———.

10 Which organelle of the cell is called suicidal bodies ?

(10 × 1 = 10 marks)

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

11 What is facilitated diffusion ?

12 Explain metastasis.

13 Write the structure and functions of chromosomal puffs.

14 Differentiate malignant and benign tumor.

15 Differentiate prokaryotic and eukaryotic ribosome.

16 What is the genetic basis of sickle anemia ?

17 Define resolving power. How does an immersion oil objective increase the resolving power of light microscope ?

18 Differentiate between euploidy and aneuploidy.

19 What are the chromosomal anomaly and abnormal phenotype features of Turner's syndrome ?

Turn over

20 What is euthenics ?

21 What are vital stains ? Give any *two* examples.

22 What is pleiotropism ? Mention *one* example.

(10 × 2 = 20 marks)

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

23 Explain fluid mosaic model of plasma membrane.

24 Give an account on structure and function of nucleus.

25 Give an account on lamp brush chromosomes.

26 Give an account on structure and function of mitochondria.

27 Explain the principle, applications and advantages of electron microscope. Mention the various types of electron microscope.

28 Describe the inherent disorders associated with the metabolism of phenylalanine.

29 What are multiple alleles ? Illustrate with a suitable example.

30 Explain sex-linked inheritance with respect to the inheritance of colour blindness in humans.

(5 × 6 = 30 marks)

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

31 Give a detailed account on chromosomal mutations.

32 Give a detailed account on different stages of meiosis. Add a note on its significance.

33 With suitable example, explain the gene interaction.

34 Explain the various mechanism of sex determination.

(2 × 10 = 20 marks)