

D 50759

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Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2013

(UG – CCSS)

Zoology (Core Course)

Z05 B10—CEL BIOLOGY GENETICS AND MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Answer all twelve questions. Each question carries 0.25 weightage :

A. Objective type question :

1 Pairing of homologous chromosomes is termed :

- (a) Chiasma. (b) Terminalisation.
(c) Synapsis. (d) Diakinesis.

2 Removal of introns and joining the exons in defined order in a transcription unit is called :

- (a) Splicing. (b) Capping.
(c) Tailing. (d) Transduction.

3 If father is B and mother is homozygous A, what will be the possible blood group of the child ?

- (a) AB and B. (b) AB and O.
(c) A and B. (d) AB and A.

4 Which of the following is an example for sex linked inheritance ?

- (a) Hypertrichosis of ear. (b) Colour blindness.
(c) Tay Sach disease. (d) Cystic fibrosis.

B. Name the following :—

5 Name the cell organelle functioning in oxidative phosphorylation.

6 Name the structural proteins of microtubules.

7 Name the term for programmed cell death.

8 Name the mRNA molecule that encodes two or more polypeptides.

C. Fill up the blanks :

9 _____ discovered polytene chromosomes.

10 _____ are the polypeptide encoding portion of structural genes.

Turn over

11 _____ are those genes base sequences code for two or more different proteins.

12 Test cross dihybrid ratio is _____.

(12 × ¼ = 3 weightage)

II. Answer all *nine* questions :

13 What is an operon ? Explain.

14 Compare and contrast mitosis and meiosis.

15 What is Epistasis ? Give an example.

16 What is linkage map ? Mention its significance.

17 What are Lamp brush chromosomes ?

18 What is intersex and gynandromorph ? Mention the genetic difference between them.

19 What are housekeeping genes and regulatory genes ?

20 What are holandric genes ? Give an example.

21 Explain Lyon hypothesis.

(9 × 1 = 9 weightage)

III. Answer any *five* questions :

22 Discuss the mechanism of signal transduction.

23 Describe the various modifications of plasma membrane.

24 Explain the genetics of ABO blood groups.

25 Describe cell cycle.

26 What are substitution mutations and frame shift mutations ? Explain.

27 Discuss the properties of genetic code.

28 Explain extra nuclear inheritance with a suitable example.

(5 × 2 = 10 weightage)

IV. Answer any *two* questions :

29 Discuss the types of chromosomal mechanism of sex determination with suitable examples.

30 Describe the structure of interphase nucleus.

31 Write an essay on transcription.

(2 × 4 = 8 weightage)