PARUL UNIVERSITY

PARUL INSTITUTE OF APPLIED SCIENCES

MID SEMESTER INTERNAL EXAMINATION, MARCH 2020

BSc. Semester II

Paper Name: Molecular genentics **Date: 02/03/2020**

Paper Code: 11102151 **Time: 1hr 30min**

Max. Marks: 40

Instructions:

1. All questions are compulsory and options are given in first and second question only.
2. Numbers to the right of question indicate the marks of respective question.

Q. 1 Attempt any one question of the following. **(08)**

(i) Explain mitochondrial inheritance in detail.

(ii) Briefly write about DNA compaction in eukaryotes.

Q. 2 Attempt any three questions of the following. **(12)**

(i) Explain Lampbrush chromosome

(ii) Write a note on deviation from Mendel's Dihybrid phenotype

(iii) Describe any two theories about mechanism of crossing over.

(iv) Explain Mendel's Law of Independent Assortment.

(v) What is Sutton's view on linkage?

Q. 3 Do as directed. Attempt all five questions. **(05)**

(i) How crossing over is different from linkage?

(ii) What is sex-limited traits?

(iii) What is pedigree chart?

(iv) Define Gene.

(v) Give one example of autosomal dominant inheritance.

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

MCQ 1 Chromatin consists of

(A) RNA (B) DNA

(C) RNA & histones (D) DNA & histones

MCQ 2 In drosophila, the sex-linked inheritance was observed by

(A) T.H.Morgan (B) Baldeyer

(C) Kornberg (D) Calvin

MCQ 3 The expression of genes is called the _____.

(A) Phenotype (B) Genotype

(C) Pedigree (D) Genome

MCQ 4 The phenomenon in which genes are present on the same chromosomes is:

(A) Cross over (B) Segregation

(C) Linkage (D) Assortment

MCQ 5 The number of types of gametes produced by a homozygous individual is

(A) 1 (B) 2

(C) 3 (D) many

MCQ 6 In the beads on a string model, the bead is made up of _____

(A) 6 histone proteins (B) 8 histone proteins

(C) 6 histone proteins and DNA (D) 8 histone proteins and DNA

MCQ 7 Histones have a high content of _____ charged amino acids.

(A) positively (B) negatively
(C) neutral (D) None of the above

MCQ 8 In monohybrid cross a typical genotype ratio is
(A) 3:1 (B) 9:7
(C) 9:3:3:1 (D) 1:2:1

MCQ 9 An individual with a pair of identical factor (allele) is
(A) Hybrid (B) Homozygous
(C) Heterozygous (D) None

MCQ 10 A strand of DNA with the sequence A A C T T G will have a complimentary strand with the following sequence:
(A) CCAGGT (B) AACTTG
(C) TTCAAG (D) TTGAAC

MCQ 11 What type of alleles will be expressed if both dominant and recessive alleles are present for a given trait?
(A) Recessive (B) Autosomal
(C) Dominant (D) Sex-linked

MCQ 12 Which blood groups are codominant?
(A) I^A & I^O (B) I^A & I^B
(C) I^B & I^O (D) None of these

MCQ 13 Which is a section of DNA that codes for a protein called?
(A) Gene (B) Chromosome
(C) Allele (D) Plasmid

MCQ 14 Inheritance of plastids in plant is a good example of
(A) Mendelian inheritance (B) Cytoplasmic inheritance
(C) Polygenic inheritance (D) epistasis

MCQ 15 How many types of gametes are expected from the organism with genotype AABBCC?
(A) One (B) Two
(C) Four (D) Eight

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