

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, APRIL 2018
B.Sc. Semester IV

Paper Name: Molecular genetics

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) Compare and contrast euchromatin and heterochromatin.
 (ii) Briefly write about DNA compaction in eukaryotes.
- Q. 2** Attempt any three questions of the following. **(12)**
 (i) Explain structure of Polytene chromosome.
 (ii) Write a note on deviation from Mendel's Dihybrid phenotype.
 (iii) Describe the types of chromosomes.
 (iv) Write short note on C-value paradox.
 (v) With example explain sex influenced inheritance.
- Q. 3** Do as directed. Attempt all five questions. **(05)**
 (i) Write about gene family?
 (ii) What is sex-limited traits?
 (iii) Define Gene.
 (iv) Define Crossing over and give its significance.
 (v) Comment on types of linkage.
- Q. 4** Write correct option in your answer sheet for following 15 multiple **(15)**
 choice questions.

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	Plasmids found in cells of bacteria are molecules of			
	(A)	DNA	(B)	RNA
	(C)	Proteins	(D)	None of these
MCQ 9	Genetic traits of seeds are noted as follows: L = long, l = short W = wrinkled, w = smooth Y = yellow, y = white R = ribbed, r = grooved Which of the following is the genotype for a short, wrinkled, yellow, grooved seed?			
	(A)	llWwyyrr	(B)	LLWWyYRr
	(C)	LIWwYYRr	(D)	llWwYYrr
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	Which of the following factors could lead to variations in the offspring of asexually reproducing organisms?			
	(A)	Crossing over.	(B)	Fertilization.
	(C)	Mutations.	(D)	Independent assortment.
MCQ 12	A pedigree chart shows:			
	(A)	The genotypic ratios of the offspring	(B)	The types of gametes produced by the parents.
	(C)	The pattern of inheritance of a specific gene.	(D)	Which genes are co-dominant.
MCQ 13	An exception to Mendel's law is			
	(A)	Independent assortment	(B)	Linkage
	(C)	Dominance	(D)	Purity of gametes
MCQ 14	An individual with a pair of identical factor (allele) is			
	(A)	Hybrid	(B)	Homozygous
	(C)	Heterozygous	(D)	None
MCQ 15	In monohybrid cross a typical genotype ratio is			
	(A)	3:1	(B)	9:7
	(C)	9:3:3:1	(D)	1:2:1

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