

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, APRIL 2017
B. Sc. Semester IV
Biochemistry
Molecular Genetics

Paper Code: 11102151

Date: 11/04/2017

Time: 12.30 p.m. to 02.00 p.m.

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

- i. Discuss epistatic and non-epistatic genetic interactions.
- ii. Explain experiment Mendel conducted with pea plants.

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

- i. Explain sex linkage in *Drosophila*.
- ii. Discuss extrachromosomal DNA in chloroplast.
- iii. Explain the deviations from Mendel's laws.
- iv. What is crossing over? Explain meiotic crossing over.
- v. Write a short note on molecular genetics.

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

- i. What are the phenotypes for multiple alleles of rabbit fur?
- ii. What will be the phenotype of the progeny if its parents have blood groups B (heterozygous) and A (homozygous)?
- iii. What is the relation between map units and recombinant percentage?
- iv. Define copy choice theory.
- v. What phenomenon did Bateson and Punnett's sweet pea experiment demonstrate?

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

MCQ 1 Resistance to which antibiotic was seen in chloroplast?

- | | |
|------------------|-----------------|
| (A) Erythromycin | (B) Tetracyclin |
| (C) Streptomycin | (D) Ampicillin |

MCQ 2 A character of petite colonies is that they _____

- | | |
|-----------------------------|------------------------|
| (A) are very big | (B) are very small |
| (C) don't have mitochondria | (D) don't have nucleus |





MCQ 3 . The ratio often referred to the Mendelian ratio is

- | | |
|-------------|---------|
| (A) 1:3:3:1 | (B) 9:7 |
| (C) 3:1 | (D) 1:1 |

MCQ 4 Laws of inheritance was given by

- | | |
|--------------|-------------|
| (A) Morgan | (B) Mendel |
| (C) Griffith | (D) Punnett |

MCQ 5 Strength of linkage is _____ proportional to linked genes

- (A) inversely (B) directly
(C) positively (D) not
- MCQ 6 In garden peas, height is determined by a single gene with tall being dominant to short. If two heterozygous plants are crossed, what proportion of the tall progeny will be homozygous dominant?
(A) 1/4 (B) 2/3
(C) 3/4 (D) 1/3
- MCQ 7 The idea that for any particular trait, the pair of alleles of each parent separate and only one allele from each parent passes to an offspring is Mendel's principle of
(A) Independent assortment (B) Hybridization
(C) Segregation (D) Linkage
- MCQ 8 Chiasma is visible at _____ phase
(A) Diplotene (B) Zygotene
(C) Leptotene (D) Prophase
- MCQ 9 Maximum number of crossing overs possible are _____
(A) 5 (B) 3
(C) 8 (D) 7
- MCQ 10 How is a carrier denoted in a pedigree?
(A)  (B) 
(C)  (D) 
- MCQ 11 X linked recessive inheritance is more common in
(A) Males (B) Females
(C) Both (D) None
- MCQ 12 Haemophilia is an example of _____ inheritance
(A) autosomal recessive (B) Y linked
(C) X linked dominant (D) none of the above
- MCQ 13 Which of these colours is not a multiple allelic variation for drosophila eye colour?
(A) pearl (B) blood
(C) eosin (D) none of the above
- MCQ 14 The ratio for dominant complement is _____
(A) 9:6 (B) 9:7
(C) 9:3:3:1 (D) 15:1
- MCQ 15 Lamarck based his postulates on which model?
(A) rats (B) giraffe
(C) tortoise (D) finches

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