14. Discuss the Mendel's experiment on garden pea to demonstrate the law of inheritance and also write his conclusion.

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M.Sc.(Bio-tech.)-I Sem.

NP-3330

M. Sc. (Biotech.) Examination, Dec. 2017

FUNDAMENTAL OF GENETICS

[M.Sc.-(Biotech.)]

(H-101)

Time : Three Hours]   *[Maximum Marks : 50*

Note : Attempt questions from **all** Sections as per instructions.

Section-A
(Very Short Answer Questions)

Answer all the *five* questions. Each question carries 2 marks. Very short answer is required not exceeding 75 words.   2×5=10

1.   Apomixis.

2. Recombination frequency.

3. Gynondomorphs.

4. Inbreeding depression.

5. Ethyl methanesulphonate (EMS).

Section-B

(Short Answer Questions)

Answer any *two* questions out of the following four questions. Each question carries 5 marks. Short answer is required not exceeding 200 words. 5×2=10

6. Explain about lethal gens with suitable examples.

7. Explain about Bombay Blood group.

8. Write about genetic control of Biochemical mutations in *Neurospora*.

9. Explain three point test cross.

Section-C

(Detailed Answer Questions)

Answer any *three* questions out of the following five questions. Each question carries 10 marks. Answer is required in detail. 10×3=30

10. Explain how the Mitochondrial Inheritance differs from Nuclear Inheritance.

11. Write in detail about Benzer's work on r II locus in T4 phage.

12. Discuss in detail about application of molecular marker is Heterosis breeding.

13. Explain CIB method of detecting mutations in *Drosophila*.

NP-3330

M.Sc. (Bio-tech.) Examination,
November 2019

FUNDAMENTAL OF GENETICS

(H-101)

(M. Sc. Biotech.)

Time : Three Hours]   *[Maximum Marks : 50*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all five questions. Each question carries 2 marks. Answer should not exceed 100 words.

$5×2=10$

1. Muller-5 method

2. Detection of linkage

3. Duplicate gene interaction

4. Holliday intermediate

5. Genic Balance Theory.

(2)

Section-B

(Short Answer Questions)

Note : *Attempt any* **two** *questions. Each question carries 5 marks. Answer should not exceed 250 words.* 2×5=10

6. What do you understand by codominance and incomplete dominance ? Give one example of each.

7. What is pleotropism ?

8. Write a short note on physical mutagens.

9. What forms the basis of blood groups in humans ? Give the possible genotypes of A anf B blood groups.

Section-C

(Detailed Answer Questions)

Attempt all **three** *questions. Each question carries 10 marks. Answer is required in detail.* 10×3=30

10. What is mutation ? With the help of examples, discuss its role in crop improvement.

11. Write notes on :

    (a) Gynandromorphs

    (b) Sex anomalies in humans.

(3)

12. Explain the concept of multiple alleles with the help of the example of self in compatibility in *Nicotiana*.

13. What is linkage mapping ? What are its limitations ?

14. Explain Mendel's principles of segregation and independent assortment. Give suitable examples.

14. Attempt the following :

(a) Theories of crossing over and chiasma formation.

(b) Inborn errors of metabolism in man.

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Roll No. ....

M. Sc. (Bio-tech.)-I Sem.

NP-3330

M. Sc. (Biotech.) Examination, Dec. 2016

FUNDAMENTAL OF GENETICS

(H-101)

(M. Sc. Biotech.)

Time : Three Hours]   *[Maximum Marks : 50*

Note : Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions of this Section. Each question carries 2 marks. Very short answer is required not exceeding 100 words. $2 \times 5 = 10$

1. Germplasm theory.

2. Forward genetics vs. Reverse genetics.

3. Law of independent assortment.

4. Pleiotropic genes.

5. Coat colour in rodents.

Section-B

(Short Answer Questions)

This Section contains four questions, attempt any *two* questions. Each question carries 5 marks. Short answer is required not exceeding 250 words. $5 \times 2 = 10$

6. Muller-5 method of detection of mutation in Drosophilla.

7. Explain genic balance theory of sex determination.

8. Describe classical vs. modern gene concept.

9. Write brief notes on physical and chemical mutagens.

Section-C

(Detailed Answer Questions)

This Section contains five questions, attempt any *three* questions. Each question carries 10 marks. Answer is required in detail. $10 \times 3 = 30$

10. Attempt the following :

    (a) Interference and coincidence

    (b) Sex limited and sex influenced traits

    (c) Sex reversal

    (d) Klinefelter's syndrome

    (e) Inheritance of A, B, AB and O blood group.

11. Describe the work of Benzer's on rII locus in T_4 phases.

12. How can you distinguish cytoplasmic inheritance from the nuclear inheritance? Describe plastid inheritance in *Mirabillis*.

13. What do you mean by inbreeding depression? Give its consequences. Also write a note on fixation of heterosis.

(Printed Pages 3)

Roll No. ....

NP-3330

M.Sc. (Biotech.) Examination,

Dec. - 2020

Fundamental of Genetics

(H-101)

[M.Sc. (Bio-Tech.)]

Time : Three Hours]   *[Maximum Marks : 50*

Note : Attempt questions from **all** sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt questions from **all** parts of this section. Each part carries 2 marks. Very short answer is required not exceeding 100 words. $5 \times 2 = 10$

1. Abbreviated genotypic ratio.

P.T.O.

2. 3-point test cross

3. Gynandromorph.

4. Physical mutagens.

5. iojap

Section-B

(Short Answer Questions)

Note : This section contains four questions, attempt any **two** questions. Each question carries 5 marks. Short answer is required not exceeding 250 words.   2×5=10

6. Explain Gene Interaction with suitable examples.

7. Explain Apomixis.

8. Discuss Pseudoallelism.

9. Explain male sterility in plants.

Section-C

(Detailed Answer Questions)

Note : This section contains five questions,

attempt any **three** questions. Each question carries 10 marks. Answer is required in detail. $3 \times 10 = 30$

10. Explain Benzer's concept of Cistron.

11. Discuss application of molecular markers in heteros is breeding.

12. Describe inborn errors of metabolism in man.

13. Explain the relation between linkage & crossing over.

14. What are lethal genes? Explain giving suitable examples.

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M.Sc. (Bio-Tech.) -I Sem.

NP-3330(CV-III)

M.Sc. (Bio-tech.) Examination, Dec.-2021

Fundamental Of Genetics

(H-101)

M.Sc. (Bio-tech.)

Time : 1½ Hours]   [Maximum Marks : 50

Note : Attempt questions from **all** sections

as per instructions.

Section - A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each

question carries **05** marks. Answer

should not exceed 100 words.

$$5 \times 2 = 10$$

1. Dosage compensation

P.T.O.

2. Klinefelter's syndrome

3. Linkage mapping

4. Coupling and repulsion hypothesis

5. Chemical mutagen

Section - B

(Short Answer Questions)

Note : Attempt any **one** question. Each question carries **10** marks. Answer should not exceed 250 words.

$$1 \times 10 = 10$$

6. Differentiate between sex linked and sex limited traits. Provide suitable examples for each trait.

7. Describe CLB method for detecting mutations in Drosophila.

8. Discuss with the help of a suitable diagram parallelism between Mendel's hypothetical particles (factors) and chromosome during meiosis.

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9. Explain male sterility in plants? Discuss its importance in plant breeding.

Section – C

(Detailed Answer Questions)

Note : Attempt any **two** questions. Each question carries **15** marks. Answer is required in detail. $2 \times 15 = 30$

10. Describe extra-chromosomal inheritance. Discuss Kappa particles in paramecium and coiling in snails.

11. What are multiple alleles? Discuss the example of ABO blood group system in humans.

12. What is Position effect variegation (PEV)? Discuss it providing suitable example.

13. Discuss different type of gene interactions which led to the modification of 9:3:3:1 dihybrid ratio.

14. What is heterosis? Discuss its importance in plant breeding.