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First Year B.Sc. (Mar-2020)

End Semester Backlog Examination, (2019 Pattern) Semester – I

Course Code: 19ScZooU102

Course Name: Zoology-II: Fundamentals Of Genetics

Date: 17.03.2020

Time: 10.00 a.m.-12.00 p.m.

[Time: 2 Hours]

[Max Marks: 60]

Instructions :

1. All questions are compulsory
2. Figures to the right indicate maximum marks
3. Draw neat and labeled diagram wherever necessary.

Q.1. Define the following:

12

- a) Law of Segregation
- b) Dominant Epistasis
- c) Nucleotide
- d) Universal acceptor
- e) Gynandromorph
- f) Mutton

Q.2. Write short notes in 8 to 10 sentences on (Any Three):

12

- a) Genic balance theory in *Drosophila*
- b) Euthenics
- c) Turner's syndrome
- d) Duplicate factors
- e) Rh factor

Q.3. Answer the following questions in 8 to 10 sentences (Any Three):

12

- a) Explain sex linked inheritance with the help of the example of haemophilia
- b) Explain the XX-XO mechanism of sex determination
- c) If the father has blood group A and the mother has blood group AB, then find out the possible phenotypes and genotypes of the children?
- d) A brown eyed child and a blue eyed child are born to father with blue eyes and mother with brown eyes. What would be the genotypes of the parents and the children?
[Note: Brown eyes colour dominates blue]
- e) Explain the experiment of 'transforming principle' performed by Avery *et.al.*

Q.4. Answer the following questions in 12 to 15 sentences (Any Two):

12

- a) What is an operon? How does the Lac operon work?
- b) What are multiple alleles? Explain with the help of blood groups in human beings
- c) Explain the mechanism of sex determination in honey bees

Q.5. Answer the following question in 24-30 sentences (Any One):

12

Write a note on the types of numerical chromosomal aberrations

OR

Write a note on the structure of DNA