



US – 392

II Semester B.Sc. Examination, May 2017
(F+R) (Semester Scheme)
(CBCS – 2014 – 15 & Onwards/NS – 2011 – 12 & Onwards)
GENETICS – II
Principles of Genetics

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Draw diagrams *wherever* necessary.
2) Answer should be written **completely** either in **English** or **Kannada**.

PART – A

- I. Answer **any five** of the following. (5×3=15)
- 1) Write a note on norms of reaction.
 - 2) Differentiate dominance and recessiveness of a character.
 - 3) Name any two gene interactions with an example to each that are deviated from Mendalism.
 - 4) What these notations used in biometry represent ?
a) % b) $\bar{x}$ c) σ
 - 5) Define range with an example.
 - 6) Comment on intersexes.
 - 7) What is sex differentiation ?

PART – B

- II. Answer **any five** of the following. (5×5=25)
- 1) In a short horn cattle, coat colour may be red, white or roan. Roan is an intermediate phenotype expressed as a mixture of red and white. Red is governed by the genotype $C^R C^R$, roan $C^R C^W$ and white by $C^W C^W$. When roan short horns are crossed with roans and the F_1 progenies are crossed among themselves to produce F_2 , what percentage of F_2 will probably be roan ?
 - 2) Explain the mechanism of co-dominance with a suitable example.

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- 3) What does gene interaction mean ? Distinguish between dominant and recessive epistasis with example to each.
- 4) What are complementary genes ? Explain its mechanism in sweet pea.
- 5) RBC_s No. of 8 persons is 35, 44, 38, 36, 39, 40, 42 and 41 lac/mm². Find out median of this series.
- 6) Write the merits of :
 - a) Standard deviation
 - b) Mode.
- 7) Describe the role of Y chromosome in melandrium.

PART – C

III. Answer **any two** of the following.

(2×10=20)

- 1) Comment on :
 - a) Pre formation theory
 - b) Backcross and test cross.
- 2) What is supplementary gene interaction ? Explain it with reference to grain colour in maize.
- 3) Find the standard deviation of incubation period of small pox when in a patient it was found to be 14, 13, 11, 15, 10, 7, 9, 12 and 10 days respectively.
- 4) Write notes on :
 - a) Gynandromorphs
 - b) Free martin.

PART – D

IV. Answer **any one** of the following.

(1×10=10)

- 1) Explain :
 - a) Phenocopy
 - b) Rh factor in human.
- 2) Comment on :
 - a) Applications of χ^2 test.
 - b) Dosage compensation in man.