SUBJECT CODE: 15BT/MC/GP64

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B. Sc. DEGREE EXAMINATION, APRIL 2019
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE   :   MAJOR – CORE
PAPER   :   GENETICS, PLANT BREEDING AND EVOLUTION
TIME   :   3 HOURS   MAX. MARKS: 100

SECTION A

Answer all the questions.   **(18 MARKS)**

I. Fill in the blanks: **(6 x 1 = 6)**

1. 9:7 indicates _____ gene interaction.
2. Maternal inheritance in *Mirabilis* is due to_____ DNA.
3. Multiple gene interaction is influence of both _____ and _____.
4. The unit of genetic map is _____.
5. Green revolution on India due to the crop plant _____.
6. Extra copy of X chromosome is abnormality represents _____.

II. State Whether True or False: **(6 x 1 = 6)**

7. In general colour blindness affects males, since females are carriers.
8. There is no sexual reproduction in clonal selection.
9. Synapsis takes place during leptotene of meiosis I.
10. Mendel worked on sweet pea.
11. Non disjunction leads to trisomy in down syndrome.
12. Pangenesis of Darwin explains the natural selection by reproduction

IV. Match the following: **(6 x 1 = 6)**

13. Agouti (coat colour)   a. Crossing over
14. Mullato   b. Quantitative inheritance
15. Zygotene   c. Pure line selection
16. Self pollination   d. Natural selection
17. Autosomal recessive   e. Codominance
18. Darwinism   f. Sickle cell anemia

IV. Answer any SIX of the following. Each answer should not exceed 50 words: **(6 x 3 = 18)**

19. Incomplete dominance
20. Multiple factor hypothesis
21. Cris cross inheritance.
22. Incomplete linkage
23. Sickle cell anemia
24. Klinefelter's syndrome
25. Inbred
26. Amphidiploid
27. Sympatric speciation

SECTION – B

Answer any <u>FOUR </u>of the following. Each answers not exceeding 200 words.   **(4 x 6 = 24)**

28. Briefly write notes on dominant epistatis with an example.
29. Describe sex determination in *Melandrium* sps.
30. Highlight the importance of genetic counseling
31. Write a short note on Down's syndrome
32. What is Hybridization technique? Write down the steps in detail
33. Give a detailed note on Chemosynthetic theory of origin of life

SECTION – C

Answer any <u>TWO </u>of the following. Each answers not exceeding 1000 words.   **(2 x 20 = 40)**

34. Write in detail about extra chromosomal inheritance in *Mirabilis jalapa*.
35. With suitable example, describe sex linkage in man with reference to colour blindness
36. Write down the selection methods followed in pure line and clonal selection.
37. Describe the theories of evolution by Lamark and Darwin.

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