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Total Number of Pages: 02

B.Tech.
PBT3D001

3rd Semester Regular/ Back Examination 2017- 18

GENETICS

BRANCH(S): BIOTECH

Time: 3 Hours

Max Marks: 100

Q. CODE: B1229

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: multiple type or dash fill up type (2x10)

- a) Mendel's experimental material was _____.
a) *Pisum sativum* b) *Lathyrus odoratus*
c) *Oryza sativa* d) *Mirabilis jalapa*
- b) The number of types of gametes produced by a homozygous individual is _____.
a) 1 b) 2 c) 3 d) many
- c) The major reason for the success of Mendelian experiments was
a) Garden pea was true breeding b) Garden pea was cross breeding
c) Garden pea was heterozygous d) Garden pea was easily available
- d) Crossing over occurs during _____ stage of mitosis.
- e) The syndrome in which individual somatic cell contains three sex chromosome XXX is called _____.
a) Down's syndrome b) Super female
c) Turner's syndrome d) Klinefelter's syndrome
- f) A gene showing codominance
a) Has one allele dominant to the other
b) Has both alleles independently expressed in the heterozygote
c) Has alleles tightly linked on the same chromosome
d) Has alleles expressed at the same time in development
- g) Which is observed after crossing over between chromosomes having pericentric inversion and normal
a) Segmental Deletion and duplication b) Bridge formation
c) Acentric and dicentric chromosomes d) Ring formation
- h) Most behavioral traits are affected by many different genetic influences as well as environment. The best descriptor for such traits is:
a) Mendelian b) Polygenic
c) Highly heritable d) None of these
- i) A graph of the number of individuals in each arbitrary phenotypic class for a quantitative trait is called a _____ (2 words).
- j) Mutation rates are generally too low to have a significant effect on allele frequencies. True/ False.

Q2 Answer the following questions: Short answer type (2x10)

- a) What is the meaning of the term allele?
b) What is test cross?
c) Why Mendel did not observe linkage?
d) Why is drosophila a convenient animal for studying linked genes?
e) What is hybrid vigour?
f) What do you mean by allelic complementation?
g) Define QTL?
h) What are the factors responsible for gene frequency in population?
i) What do you mean by genetic drift?
j) List few examples of genetic diseases in Humans?

