



# BIOLOGY

## BOOKS - TRUEMAN BIOLOGY

### NCERT Exemplar Questions +2 (PRINCIPLE OF INHERITANCE AND VARIATION)

**Mcqs**

1. All genes located on the same chromosome:-

- A. form different groups depending upon their relative distance
- B. form one linkage group
- C. will not form any linkage groups
- D. form interactive groups that affect the phenotype

**Answer: b**



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2. Conditions of a karyotype

$2n \pm 1$  and  $2n \pm 2$  are called

- A. aneuploidy
- B. polyploidy
- C. allopolyploidy
- D. monosomy

**Answer: a**



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3. Distance between the genes and percentage of recombination shows

- A. a direct relationship
- B. an inverse relationship
- C. a parallel relationship
- D. no relationship

**Answer: b**



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4. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

A. autosomal dominant

B. autosomal recessive

C. sex-linked dominant

D. sex-linked recessive

**Answer: d**



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5. In sickle cell anaemia glutamic acid is replaced by valine Which one of the following triplets codes for valine ?

A. G G G

B. A A G

C. G A A

D. G U G

**Answer: d**



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6. Person having genotype  $I^A I^B$  would show the blood group as AB. Thus is because of

A. pleiotropy

B. co-dominance

C. segregation

D. incomplete dominance

**Answer: b**



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7. ZZ/ZW type of sex determination is seen in

A. Platypus

B. Snails

C. Cockroach

D. Peacock

**Answer: d**



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8. A cross between two tall plants resulted in offspring having few dwarf plants. What would be the genotypes of both the parents ?

A. TT and Tt

B. Tt and Tt

C. TT and TT

D. Tt and tt

**Answer: b**



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9. In a dihybrid cross if you get 9:3:3:1 ratio it denotes that

- A. 1) the alleles of two genes are interacting with each other
- B. 2) it is a multigenic inheritance
- C. 3) it is a case of multiple allelism
- D. 4) the alleles of two genes are segregating independently

**Answer: d**



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10. Which of the following will not result in variations among siblings ?

- A. Independent assortment of genes
- B. Crossing over
- C. Linkage
- D. Mutation

**Answer: c**



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11. Mendel's law of independent assortment holds good for genes situated on the

A. non-homologous chromosomes

B. homologous chromosomes

C. ) extra nuclear genetic element

D. same chromosome

**Answer: a**



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12. Occasionally, a single gene may express more than one effect. The phenomenon is called

A. multiple allelism

B. mosaicism

C. pleiotropy

D. polygeny

**Answer: c**



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**13.** In a certain taxon of insects some have 17 chromosomes and the others have 18 chromosomes. The 17 and 18 chromosome-bearing organisms are

A. 1) males and females, respectively

B. 2) females and males, respectively

C. 3) all males

D. 4) all females

**Answer: a**



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14. The inheritance pattern of a gene over generations among human is studied by the pedigree analysis. Character studied in the pedigree analysis is equivalent to

A. quantitative trait

B. Mendelian trait

C. polygenic trait

D. maternal trait

**Answer: b**



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**15.** It is said that Mendel proposed that the factor controlling any character is discrete and independent. This proposition was based on the

A. 1) results of  $F_3$  generation of a cross

B. 2) observations that the offspring of a cross made between the plants having



two contrasting characters shows only one character without any blending

C. 3)self pollination of  $F_1$  offsprings

D. 4)cross pollination of parental generations

**Answer: b**



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**16.** Two genes 'A' and 'B' are linked. In a dihybrid cross involving these two genes, the  $F_1$  heterozygote is crossed with homozygous recessive parental type (aa bb). What would be the ratio of offspring in the next generation?

A. 1 : 1 : 1 : 1

B. 9 : 3 : 3 : 1

C. 3 : 1

D. 1 : 1

**Answer: a**



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17. In the  $F_2$  generation a Mendelian dihybrid cross the number of phenotypes and genotypes are

- A. phenotypes - 4, genotypes - 16
- B. phenotypes - 9, genotypes - 4
- C. phenotypes - 4, genotypes - 8
- D. phenotypes - 4, genotypes - 9

**Answer: d**



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**18.** Mother and father of a person with 'O' blood group have 'A' and 'B' blood group respectively. What would be the genotype of both mother and father ?

A. Mother is homozygous for 'A' blood group and father is heterozygous for 'B'

B. Mother is heterozygous for 'A' blood group and father is homozygous for 'B'

C. Both mother and father are heterozygous for 'A' and 'B' blood group, respectively

D. Both mother and father are homozygous for 'A' and 'B' blood group, respectively

**Answer: c**



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