

MCQ TEST SERIES**S12-BZ-C4-PRINCIPLES OF INHERITANCE AND VARIATION****4.1 – MULTIPLE ALLELES****4.2 – HUMAN BLOOD GROUPS**

1. The term "multiple alleles" refers to:
 - A. Two different genes at different loci
 - B. Three or more alternative forms of a gene at the same locus
 - C. Genes on different chromosomes
 - D. Genes that only determine blood groups
2. Which of the following best describes the dominance relationship in the ABO blood group system?
 - A. $I^A > I^B > i$
 - B. $i > I^A = I^B$
 - C. $I^A = I^B > i$
 - D. $I^A = I^B = i$
3. The I^A allele produces which specific enzyme?
 - A. Galactose transferase
 - B. Acetyl galactose transferase
 - C. N-acetyl galactosamine transferase
 - D. Amylase
4. The i allele is referred to as a "null" allele because:
 - A. It produces both A and B antigens
 - B. It encodes an inactive enzyme
 - C. It specifies an enzyme that digests RBCs
 - D. It causes cell death
5. A person with $I^A I^B$ genotype has which blood group and what kind of dominance?
 - A. AB; co-dominance
 - B. O; incomplete dominance
 - C. A; complete dominance
 - D. B; recessive
6. Which of the following is the correct genotype for a person with blood group O?
 - A. $I^A i$
 - B. $I^A I^A$
 - C. $i i$
 - D. $I^B i$
7. What would be the possible blood groups of the offspring if parents have genotypes $I^A i$ and $i i$?
 - A. A and B only
 - B. A, B, AB, and O
 - C. AB only
 - D. A and AB only
8. In ABO blood groups, the term "secretors" refers to individuals who:
 - A. Lack blood antigens
 - B. Secrete hormones into blood
 - C. Possess A or B antigens in fluids like saliva
 - D. Can donate to anyone
9. A child with blood group O cannot have parents with which of the following combinations?
 - A. $I^A i \times i i$
 - B. $I^A i \times i i$
 - C. $I^A I^A \times i i$
 - D. $i i \times i i$
10. Who discovered the A and B antigens on human RBCs?
 - A. Karl Landsteiner
 - B. Bernstein
 - C. Alexander Wiener
 - D. Mendel
11. Which allelic gene series controls the ABO blood groups?
 - A. I^A , I^B , and i
 - B. A, B, C
 - C. D, d, E
 - D. G, H, I
12. Which of the following blood types is considered a "universal donor"?
 - A. A
 - B. AB
 - C. B
 - D. O
13. If a father has blood group AB and the mother has blood group O, the possible blood group of their child is:
 - A. A only
 - B. B only
 - C. AB only
 - D. Not possible (incompatible)
14. The antigen associated with blood group B is produced by the enzyme:
 - A. NAG transferase
 - B. Lactose synthase
 - C. Galactose transferase
 - D. Sucrase
15. The genotype $I^A I^A$ produces which antigen and antibodies in the blood?
 - A. Antigen A; Anti-A
 - B. Antigen A; Anti-B
 - C. Antigen B; Anti-A
 - D. Antigen AB; None

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4.1 – MULTIPLE ALLELES

4.2 – HUMAN BLOOD GROUPS

ANSWER KEY

1. B
2. C
3. C
4. B
5. A
6. C
7. B
8. C
9. C
10. A
11. A
12. D
13. D
14. C
15. B

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