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NEET PRINCIPLES OF INHERITANCE AND VARIATION — INCOMPLETE DOMINANCE, CO-DOMINANCE AND MULTIPLE ALLELISM (ABO BLOOD GROUPS) — PYQS

Max. Marks: 88 **Questions:** 22

Section A (MCQ) — 22 questions

Q.1 Match **List I** with **List II** : [NEET (UG) 2026]

List-I		List-II	
A.	Incomplete dominance	I.	Human skin colour
B.	Co-dominance	II.	Inheritance of flower colour in *Antirrhinum* sp.
C.	Pleiotropy	III.	Phenylketonuria disease in humans
D.	Polygenic inheritance	IV.	ABO blood groups

(1) A-I, B-IV, C-III, D-II
(2) A-I, B-III, C-II, D-IV
(3) A-II, B-IV, C-III, D-I
(4) A-II, B-I, C-III, D-IV

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Q.2 What is the probability of having children with 'O' blood group, where both mother and father are heterozygous for 'A' and 'B' blood group, respectively ? [NEET (UG) 2026]

(1) 0% (2) 50% (3) 25% (4) 75%

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Q.3 For a person with blood group 'O', which of the following is not a possible combination of parents' blood group genotypes? [RE-NEET (UG) 2026]

(1) Father : I^AI^B and Mother : I^Ai
(2) Father : I^Ai and Mother : I^Ai
(3) Father : I^Ai and Mother : I^Bi
(4) Father : I^Bi and Mother : I^Bi

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Q.4 A pink flowered Snapdragon plant was crossed with a red flowered Snapdragon plant. What type of phenotype/s is/are expected in the progeny? [NEET (UG) 2024]

(1) Only red flowered plants
(2) Red flowered as well as pink flowered plants
(3) Only pink flowered plants
(4) Red, Pink as well as white flowered plants

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Q.5 As per ABO blood grouping system, the blood group of father is B^+, mother is A^+ and child is O^+. Their respective genotype can be

A. $I^Bi/I^Ai/ii$ B. $I^BI^B/I^AI^A/ii$
C. $I^AI^B/iI^A/I^Bi$ D. $I^Ai/I^Bi/I^Ai$
E. $iI^B/iI^A/I^AI^B$

Choose the most appropriate answer from the options given below : [NEET (UG) 2024]

(1) A only (2) B only
(3) C & B only (4) D & E only

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Q.6 The mother has A + blood group, the father has B + and the child is A + . What can be the possibility of genotypes of all three, respectively?

A. I^AI^A | I^Bi | I^Bi B. I^AI^A | I^Bi | I^Ai
C. I^Bi | I^AI^A | I^AI^B D. I^AI^A | I^BI^B | I^Ai
E. I^Ai | I^Bi | I^Ai

Choose the correct answer from the options given below: [RE-NEET (UG) 2024]

(1) C and D (2) D and A
(3) A and B (4) B and E

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Q.7 Identify the wrong statement with reference to the gene 'I' that controls ABO blood groups. [NEET (UG) 2020]

(1) Allele 'i' does not produce any sugar.
(2) The gene (I) has three alleles.
(3) When I^A and I^B are present together, they express same type of sugar.
(4) A person will have only two of the three alleles.

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Q.8 In *Antirrhinum* (Snapdragon), a red flower was crossed with a white flower and in F_1 generation, pink flowers were obtained. When pink flowers were selfed, the F_2 generation showed white, red and pink flowers. Choose the **incorrect** statement from the following : [NEET (UG) 2019]

(1) Ratio of F_2 is $\frac{1}{4}$ (Red) : $\frac{2}{4}$ (Pink) : $\frac{1}{4}$ (White)

(2) Law of Segregation does not apply in this experiment

(3) This experiment does not follow the Principle of Dominance

(4) Pink colour in F_1 is due to incomplete dominance

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Q.9 Which of the following pairs is wrongly matched? [NEET 2018]

(1) Starch synthesis in pea : Multiple alleles

(2) ABO blood grouping : Co-dominance

(3) XO type sex determination: Grasshopper

(4) T.H. Morgan : Linkage

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Q.10 Which of the following characteristics represent 'Inheritance of blood groups' in humans?

A. Dominance
B. Co-dominance
C. Multiple allele
D. Incomplete dominance
E. Polygenic inheritance [NEET 2018]

(1) B, C and E only (2) A, B and C only

(3) B, D and E only (4) A, C and E only

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Q.11 The genotypes of a Husband and Wife are I^AI^B and I^Ai.
Among the blood types of their children, how many different genotypes and phenotypes are possible? [NEET 2017]

(1) 4 genotypes ; 3 phenotypes

(2) 4 genotypes ; 4 phenotypes

(3) 3 genotypes ; 4 phenotypes

(4) 3 genotypes ; 3 phenotypes

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Q.12 Multiple alleles are present [AIPMT 2015 (Cancelled)]

(1) on different chromosomes

(2) at the same locus of the chromosome

(3) at different loci on the same chromosome.

(4) on non-sister chromatids

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Q.13 A man with blood group 'A' marries a woman with blood group 'B'. What are all the possible blood groups of their offsprings? [AIPMT 2015 (Cancelled)]

(1) A and B only (2) A, B, AB and O

(3) A, B and AB only (4) O only

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Q.14 If two persons with 'AB' blood group marry and have sufficiently large number of children, these children could be classified as 'A' blood group : 'AB' blood group : 'B' blood group in 1 : 2 : 1 ratio. Modern technique of protein electrophoresis reveals presence of both 'A' and 'B' type proteins in 'AB' blood group individuals. This is an example of : [NEET 2013]

(1) Codominance

(2) Partial dominance

(3) Incomplete dominance

(4) Complete dominance

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Q.15 Which idea is depicted by a cross in which the F_1 generation resembles both the parents? [NEET 2013]

(1) law of dominance

(2) co-dominance

(3) incomplete dominance

(4) inheritance of one gene

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Q.16 F_2 generation in a Mendelian cross showed that both genotypic and phenotypic ratios are same as 1 : 2 : 1. It represents a case of [AIPMT 2012 (Prelims)]

(1) Monohybrid cross with incomplete dominance

(2) Co-dominance

(3) Monohybrid cross with complete dominance

(4) Dihybrid cross

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Q.17 ABO blood grouping is controlled by gene I which has three alleles and shows co-dominance. There are six genotypes. How many phenotypes in all are possible - [AIPMT 2010 (Mains)]

(1) five (2) four (3) three (4) six

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Q.18 In *Antirrhinum* two plants with pink flowers were hybridized. The F_1 plants produced red, pink and white flowers in the proportion of 1 red, 2 pink and 1 white. What could be the genotype of the two plants used for hybridization? Red flower colour is determined by RR, and White by rr genes - [AIPMT 2010 (Mains)]

(1) rrrr (2) rr (3) Rr (4) RR

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Q.19 ABO blood groups in humans are controlled by the gene I. It has three alleles – I^A, I^B and i. Since there are three different alleles, six different genotypes are possible. How many phenotypes can occur – [AIPMT 2010 (Prelims)]

(1) One (2) Two (3) Three (4) Four

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Q.20 The most popularly known blood grouping is the ABO grouping. It is named ABO and not ABC, because "O" in it refers to having: [AIPMT 2009]

(1) Other antigens besides A and B on RBCs

(2) No antigens A and B on RBCs

(3) Overdominance of this type on the genes for A and B types

(4) One antibody only – either anti-A or anti-B on the RBCs

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Q.21 When dominant and recessive alleles express themselves together it is called [AIPMT 2001]

(1) Dominance (2) Pseudo dominance

(3) Co-dominance (4) Amphidominance

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Q.22 Erythroblastosis foetalis is caused when: [AIPMT 2000]

(1) Rh^- female & Rh^+ male

(2) Rh^- female & Rh^- male

(3) Rh^+ female & Rh^+ male

(4) Rh^+ female & Rh^- male

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**3**	**3**	**1**	**2**	**1**	**4**	**3**	**2**	**1**	**2**	**1**
Ques.	12	13	14	15	16	17	18	19	20	21	22
Ans.	**2**	**2**	**1**	**2**	**1**	**2**	**3**	**4**	**2**	**3**	**1**