

APOLLO

Inheritance

FBISE Biology Class 11 (HSSC-I)

Domain H: Reproduction and Inheritance

35 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

12.	Traits which exhibit continuous phenotypic variation are typically determined by which of the following inheritance form:	Incomplete dominance	Polygenic inheritance	Multiple-allelic inheritance	Sex-linked inheritance
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13.	When two yellow <i>Labrador retriever</i> cross with each other, what is the probability that they produce yellow offsprings:	Zero %	25%	50%	100%
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55.	A gene codes for:	Lipid synthesis	Polypeptide formation	ATP production	Glucose synthesis
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56.	A cross between two heterozygous pink flowers 4 O'clock plants result in phenotypic ratio:	3:1	1:1	2:1	1:2:1
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Scenario for MCQ# 73 to 76		During a genetic counselling session in a college, students asked questions about how the sex of the babies is determined. The counsellor explained to the students that the mother has two X chromosomes (XX), while the father has one X and one Y chromosome (XY).			
73.	The sex of the child is determined by:	Mother only	Father only	Both equally	Environment

Scenario for MCQ# 73 to 76		During a genetic counselling session in a college, students asked questions about how the sex of the babies is determined. The counsellor explained to the students that the mother has two X chromosomes (XX), while the father has one X and one Y chromosome (XY).			
74.	If sperm carries X chromosome fertilizes the normal egg, the child will be:	Intersex	Male	Sterile	Female

Scenario for MCQ# 73 to 76		During a genetic counselling session in a college, students asked questions about how the sex of the babies is determined. The counsellor explained to the students that the mother has two X chromosomes (XX), while the father has one X and one Y chromosome (XY).			
75.	Probability of male childbirth in each pregnancy is :	25%	50%	75%	100%

3+3	OR	Explain recessive epistasis in animals with example. Sketch its genetic cross to show the deviation from standard Mendelian ratio.	3+3
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First Annual 2025 | Section A Q13 | 1 mark

13.	The sex linked traits which are more common in males than female are:	Autosomal recessive	Y-linked dominant	X-linked dominant	X-linked recessive
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First Annual 2025 | Section A Q16 | 1 mark

16.	Identify the trait which is NOT controlled by polygenes?	Intelligence	Height	Skin color	Tongue rolling
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First Annual 2025 | Section B Q2(iv) OR | 3 marks

OR	What is incomplete dominance? Explain with a suitable example.	1+2
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First Annual 2025 | Section B Q2(ix) | 3 marks

(ix)	What is Y-linked inheritance? How these traits are transmitted? Also give two examples.	1x3
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First Annual 2025 | Section B Q2(x) OR | 3 marks

OR	Coat color in <i>Labrador retriever</i> shows epistasis. If a black (BbEe) and a chocolate (bbEe) <i>Labradors retrievers</i> are crossed: a. Show genotypes and phenotypes of offspring(s). b. Calculate the probability of black and yellow coat color.	2+1
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First Annual 2025 | Section B Q2(v) OR | 3 marks

OR	Name the type of pattern of sex determination in humans. Also write mechanism of sex determination in man.	1+2
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First Annual 2025 | Section B Q2(x) | 3 marks

(x)	Justify that O ^{-ve} persons are universal donors and AB ^{+ve} are universal recipients of blood.	03
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First Annual 2025 | Section C Q5 | 6 marks

Q.5	Epistasis is different from dominance. Explain with the example of coat color in <i>Labrador retriever</i> .	06
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Second Annual 2025 | Section B Q2(ix) OR | 3 marks

(ix)	Briefly explain any three prokaryotic features of cyanobacteria.	1x3	OR	Differentiate between incomplete dominance and codominance.	1.5 +
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Second Annual 2025 | Section B Q2(vi) OR | 3 marks

(vi)	Briefly explain three steps of oxidation of pyruvate into acetyl Co-A.	1x3	OR	Equisetum Why are the chances of a husband and wife having either a boy or a girl 50:50?	03
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Second Annual 2025 | Section C Q6 | 6 marks

Q.6	Explain inheritance of wheat grain colour. Make a suitable checker board as an example of Polygenic inheritance.	3+3	OR
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First Annual 2026 | Section A Q13 | 1 mark

Polygenic inheritance results in:	Single trait expression	Continuous variation	Dominant traits only	Mutation only	☐	☐	☐	☐
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First Annual 2026 | Section A Q14 | 1 mark

14. Epistasis modifies:	DNA	Genetrix ratio	Phenotypic ratio	Protein	☐	☐	☐	☐
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First Annual 2026 | Section B Q2(x) | 3 marks

Explain through a cross that incomplete dominance is a deviation from Mendal's law of segregation.	03
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First Annual 2026 | Section C Q6(ab) OR | 6 marks

OR	a. Explain genetics of hemophilia with reference to pattern of inheritance. b. Can two normal parents have a hemophilic child? Work out the probability.	3+3
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First Annual 2026 | Section A Q13 | 1 mark

Polygenic inheritance results in:	Discrete variation	Mutation only	No variation	Continuous variation
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First Annual 2026 | Section A Q14 | 1 mark

14. In Labrador retrievers, coat colour inheritance is an example of:	Incomplete dominance	Codominance	Mutation	Epistasis
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First Annual 2026 | Section B Q2(x) | 3 marks

When Red 4'O clock flower is crossed with white flower, what is the probability of red, white and pink flowers?	03
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Q.6	a. Explain genetics of colour-blindness with reference to pattern of inheritance. b. Can two normal parents have a colourblind child? Work out the probability.	3+3
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(xiii)	Traits which exhibit continuous phenotypic variation are typically determined by this inheritance form:	Incomplete dominance	Polygenic inheritance	Multiple-allele inheritance	Sex-linked inheritance
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(xiv)	When two golden <i>Labrador retriever</i> cross with each other, they produce golden offsprings:	Zero %	25%	50%	100%
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Two pink flowered four o' clock plants are crossed with each other. What is F1 generation probability and ratio?	3
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Q.6	How X- linked recessive characters are inherited in humans? Explain with an example.	2+4
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13. Which blood group results from the presence of both I^A and I^B alleles?	A	B	O	AB
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14. Which genetic cross illustrates incomplete dominance?	Red flower × White flower → Pink flower	Red flower × White flower → All red	Tall pea plant × Dwarf pea plant → All tall	Yellow seed × Green seed → All yellow
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(x)	Explain Sex determination in human by Punnett square.	03
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Q.6	Explain epistasis with reference to inheritance of coat colour in labrador retriever.	06
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