Interspecific hybridisation

Male(♂) and female animals of two different species are mated.

Mule ⇒ ♀ घोड़ी x Male ♂ गधा

"खच्चर" ↳ [due to ⇒ Suited for hard work in difficult terrains and like mountainous region.]

"Controlled breeding experiments"

↳ "Artificial insemination"

♂ Male (semen) → ♀ selected female + by "breeder"

↳ collected ↓ parent

↳ immediately / can be frozen

It can also transported in a frozen from to where the female is housed.

In this way desirable mating are carried.

Artificial insemination helps overcome several problems of normal mating.

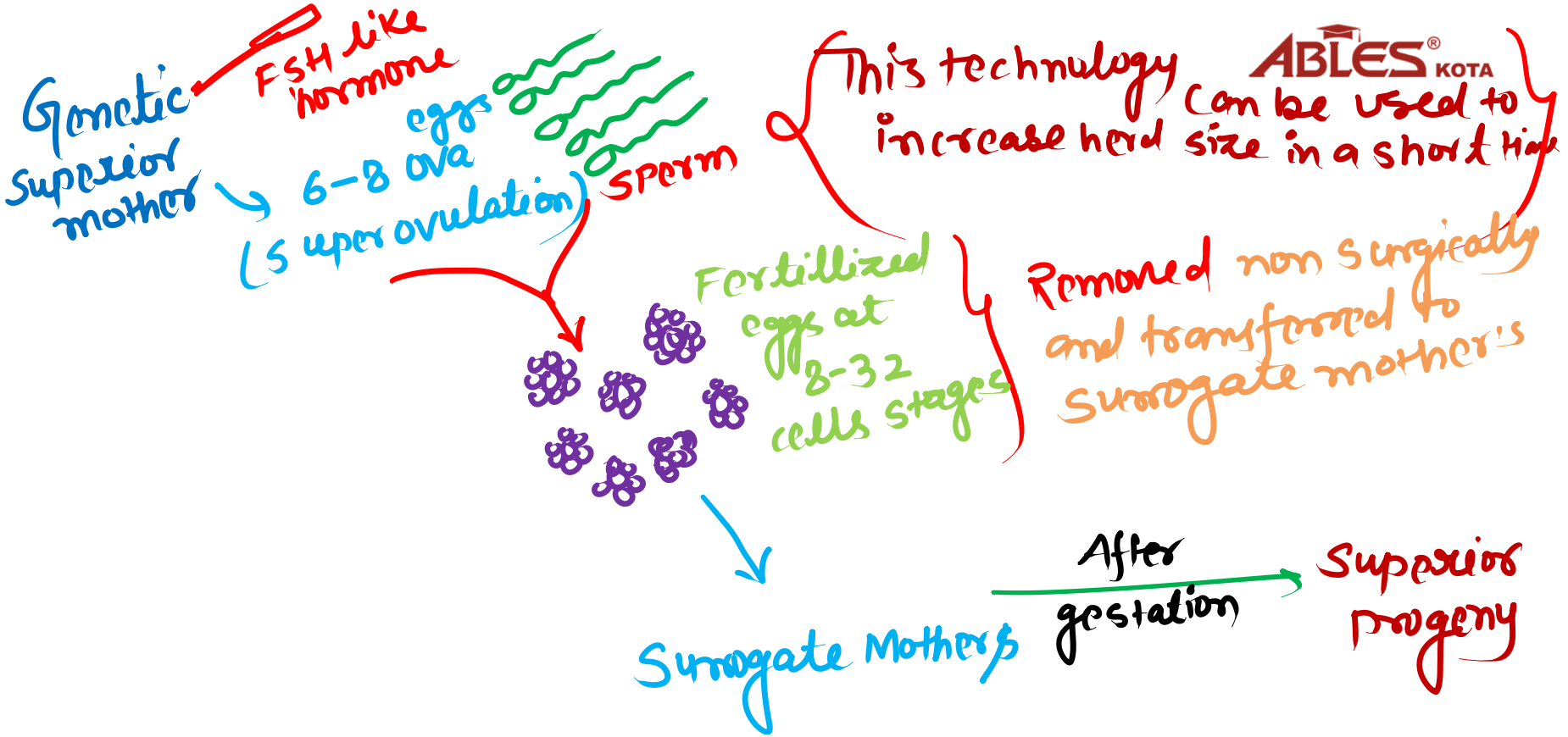
Multiple Ovulation Embryo transfer Technology

ABLES KOTA

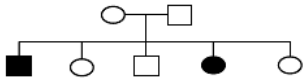
(MOET)

A cow is administered hormones with FSH like activity to induce follicular maturation and Super ovulation instead of one egg which they normally yield per cycle they produce 6-8 eggs

* खोड़(बैल) "elite bull" / Artificially inseminated 8-32 cell stages non surgically transfer to surrogate mother


Genetic superior mother
FSH like hormone
6-8 ova
(5 superovulation)
eggs
sperm
This technology can be used to increase herd size in a short time
ABLES KOTA
Fertilized eggs at 8-32 cells stages
Removed non surgically and transferred to surrogate mother's
Surrogate Mothers
After gestation
Superior progeny

Given below is a pedigree chart of family with five children. It shows the inheritance of attached ear-lobes as opposed to the free ones. The squares represent the male individuals and circles the female individuals.



Which one of the following conclusions drawn is correct?

(a) The parents are homozygous recessive.
(b) The trait is Y-linked.
(c) The parents are homozygous dominant.
(d) The parents are heterozygous.

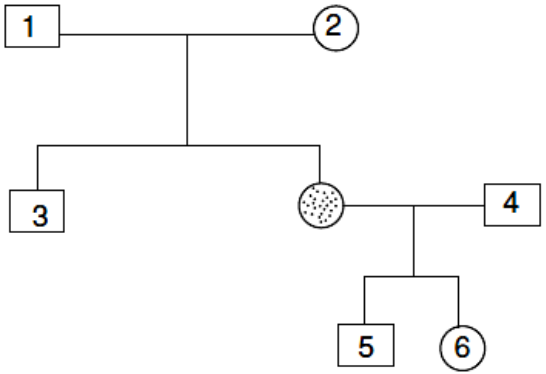
The pedigree shows the occurrence of albinism which is a recessive trait. If person 4 is homozygous, the carrier for the trait is

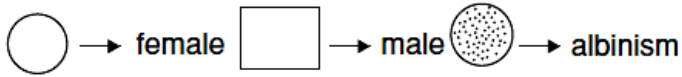
(a) 1, 4, 5 and 6

(b) 5 and 6

(c) 1, 2 and 3

(d) 1, 2, 5 and 6





albinism

Both parents

1, 2, 5 and 6.

Failure of segregation of chromatids during cell division cycles results in the gain or loss of a chromosome(s) called

(a) Aneuploidy

(b) Polyploidy

(c) Trisomy

(d) Nullisomy

Down's syndrome occurs due to the gain in extra copy of

(a) Chromosome 19

(b) Chromosome 5

(c) Chromosome 21

(d) Chromosome 24

Down's Syndrome ↓ Chromosome 5

Turner's syndrome occurs due to the loss of

(a) Chromosome 5

(c) Chromosome 'X'

(b) Chromosome 21

(d) Chromosome 'Y'

Turner's syndrome

Chromosome = 21

Gynaecomastia is seen in case of

(a) Down's syndrome

(b) Klinefelter's syndrome

(c) Turner's syndrome

(d) All of these

Gynaecomastia ⇒ "Klinefelter's syndrome"

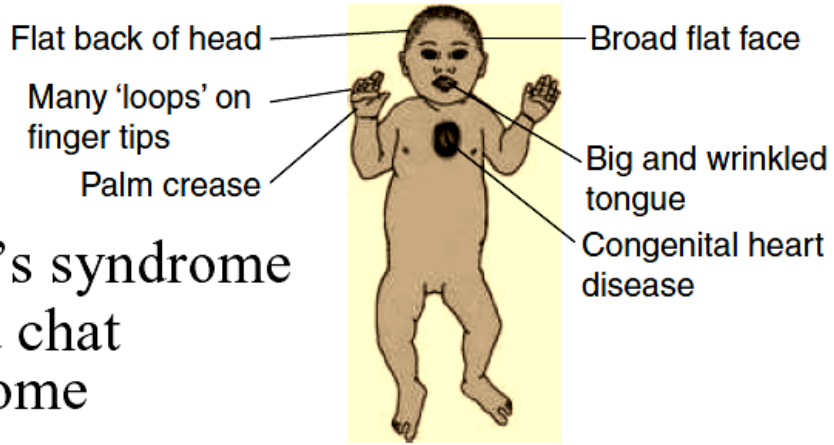
The following features belong to which syndrome?
(A) Furrowed tongue
(B) Palm is broad with characteristic palm crease
(C) Physical, psychomotor and mental retardation
(D) Short statured with small round head

(a) Down's syndrome (b) AIDS

(c) Turner's syndrome (d) Klinefelter's

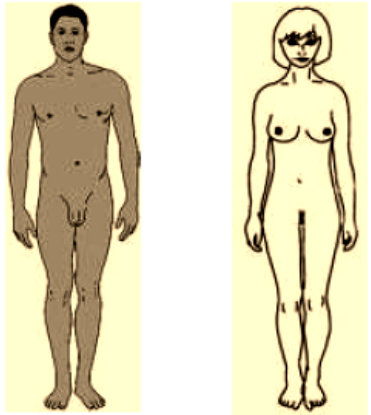
Down's syndrome
↳ palm => broad
physical, mental

The below diagram shows which type of syndrome?



(a) Down's syndrome
(b) Cri-du chat syndrome
(c) PKU
(d) Turner's syndrome

Identify the syndrome of diagrams a and b, respectively.



(a) A: Down's syndrome, B: Turner's syndrome

(b) A: Klinefelter's syndrome, B: Turner's syndrome

(c) A: Turner's syndrome, B: Klinefelter syndrome

(d) A: Turner's syndrome, B: Down's syndrome

Queen Victoria was a carrier of which disease?

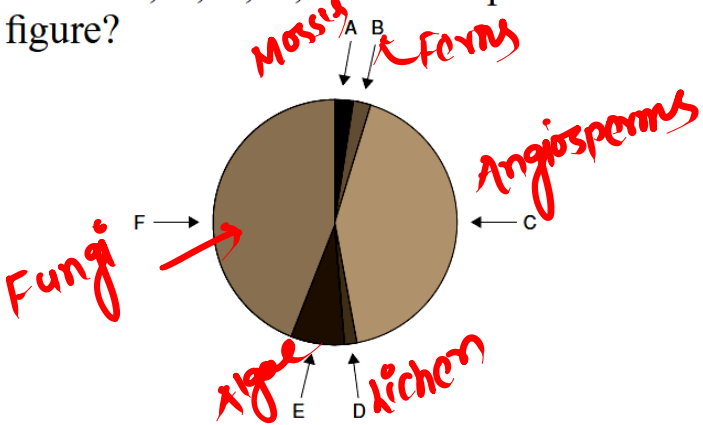
(a) Myotonic dystrophy (b) Sickle-cell anaemia

(c) Haemophilia (d) Phenylketonuria

Queen Victoria → "Haemophilia"

1	2	3	4	5	6	7	8	9	10
D	D	A	C	C	B	A	A	B	C

What does A, B, C, D, E and F represent in this figure?



π-chart for number of species of major taxa of plants.

(a) A: Ferns and allies, B: Mosses, C: Algae, D: Fungi, E: Lichens, F: Angiosperms

(b) A: Fungi, B: Mosses, C: Lichens, D: Ferns and allies, E: Angiosperms, F: Algae

(c) A: Angiosperms, B: Ferns and allies, C: Fungi, D: Lichens, E: Algae, F: Mosses

(d) A: Mosses, B: Ferns and allies, C: Angiosperms, D: Lichens, E: Algae, F: Fungi

Match Column-I (Place) with Column-II (Number of bird species).

Column–I	Column –II
1. Colombia	A. 1200
2. New York	B. 1300
3. India	C. 1400
4. Amazonian rain forest	D. 105

(a) A:3, B:4, C:2, D:1 (b) A:2, B:1, C:4, D:3

(c) A:2, B:4, C:3, D:1 (d) A:3, B:4, C:1, D:2

(A-3 B-4 C-1 D-2)

The largely tropical Amazonian rain forest in South America has the greatest biodiversity on earth. It is the home for more than 40,000 species of plants. 3,000 of fishes, 1300 of birds, 427 of mammals, 427 of amphibians, 378 of rep- tiles and of more than 1,25,000 invertebrates.

(a) 30,000, 4000, 1200, 427, 427, 387, 1,25,000
(b) 40,000, 3000, 1200, 427, 427, 387, 1,25,000
(c) 40,000, 3000, 1300, 427, 427, 378, 1,25,000
(d) 40,000, 3000, 1200, 427, 427, 378, 1,25,000

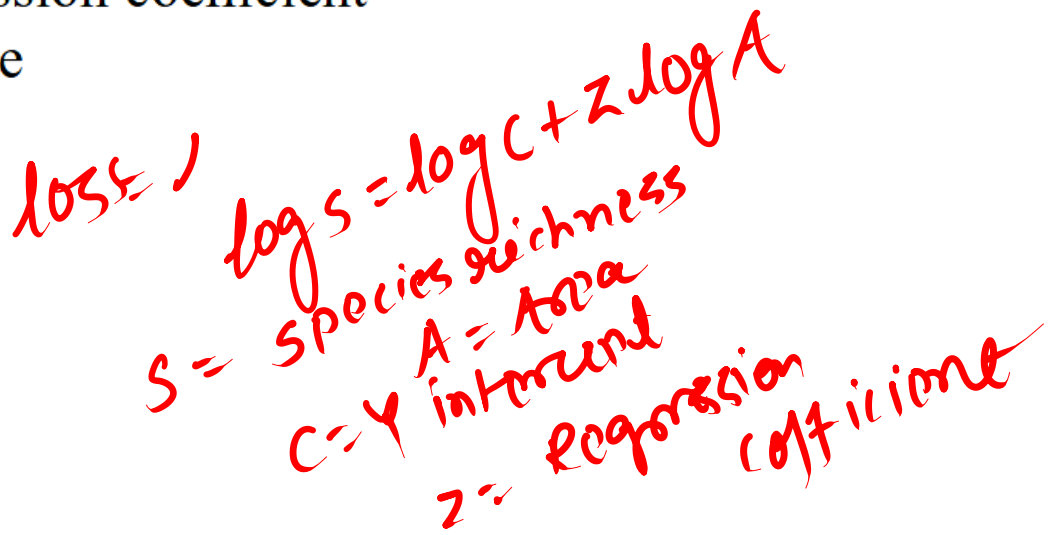
log S = log C + Z log A (Logarithmic formula for species–area relationship). True about this formula

(a) S = Species richness A = Area

(c) C = Y-intercept

(b) Z = Regression coefficient

(d) All of these



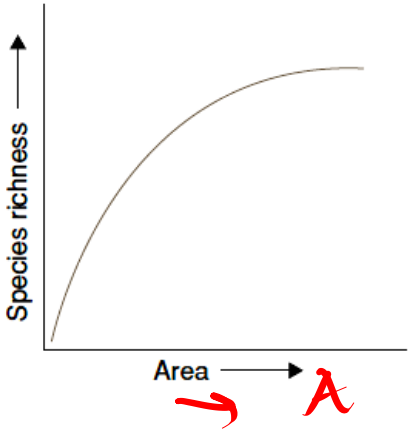
Which is the correct formula of the graph shown below? Given:

S-species richness

A-Area

C-Y-intercept

Z-Slope of line
(regression coefficient)



(a) $S = CA^Z$

(b) $S = CZ^A$

(c) $S = ZC^A$

(d) $Z = SC^A$

$\log S = \log C + z \log A$

$\log S = C A^z$

C A^z

IUCN Red list (2004) documents the extinction of how many species in last 500 years?

(a) 784

(b) 874

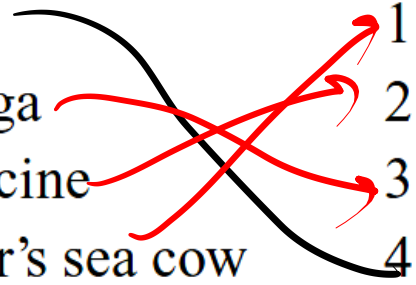
(c) 478

(d) 487

IUCN (Red list) 2004
⇒ 784

Match the Column- I (Recently extinct animals) with Column-II (Places from where they are extinct).

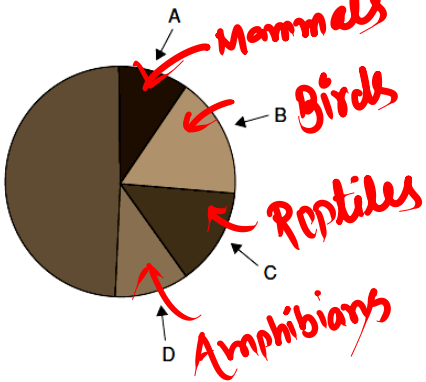
Column-I	Column-II
A. Dodo	1. Russia
B. Quagga	2. Australia
C. Thylacine	3. Africa
D. Steller's sea cow	4. Mauritius



(a) A:1, B:2, C:3, D:4 (b) A:4, B:3, C:2, D:1

(c) A:4, B:2, C:3, D:1 (d) A:4, B:1, C:2, D:3

What is A, B, C and D in this figure?



π-chart for number of species of major taxa of vertebrates

(a) A: Mammals, B: Birds, C: Reptiles, D: Amphibians

(b) A: Amphibians, B: Birds, C: Mammals, D: Reptiles

(c) A: Reptiles, B: Amphibians, C: Birds, D: mammals

(d) A: Mammals, B: Reptiles, C: Birds, D: Amphibians

Steller's sea cow and Passenger pigeon became extinct due to

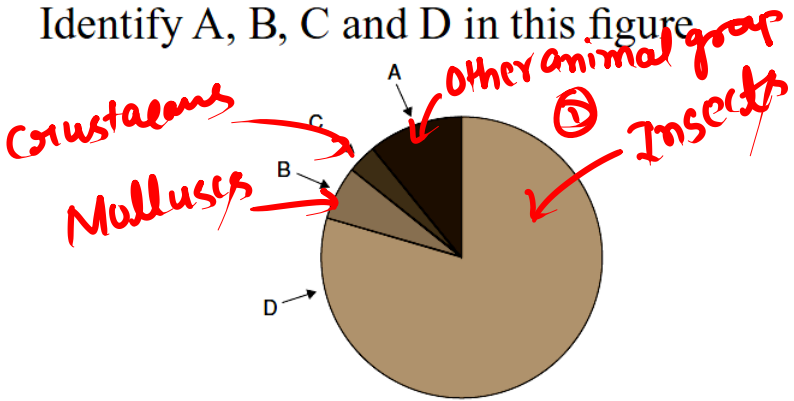
(a) Alien species invasion

(c) Habitat loss and fragmentation

(b) Co-extinction

(d) Over exploitation

Identify A, B, C and D in this figure



π-chart for the number of species of major taxa of Invertebrates

(a) A: Insects, B: Crustaceans, C: Molluscs, D: Other animal groups

(b) A: Other animal groups, B: Molluscs, C: Crustaceans, D: Insects

(c) A: Molluscs, B: Insects, C: Other animal groups, D: Crustaceans

(d) A: Insects, B: Molluscs, C: Crustaceans, D: Other animal groups

1	2	3	4	5	6	7	8	9	10
D	D	C	D	A	A	B	A	D	B