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Question. 1 Exchange of genetic material takes place in

(a) Vegetative reproduction

(b) Asexual reproduction

(c) Sexual reproduction

(d) Budding

Answer. (c)

Explanation: Sexual reproduction involves meiosis in gamete mother cells to form gametes and fusion of male and female gametes into zygote.

Question. 2 Two pink coloured flowers on crossing resulted in 1 red, 2 pink and 1 white flower progeny. The nature of the cross will be

(a) Double fertilization

(b) Self pollination

(c) Cross fertilization

(d) No fertilization

Answer. (c)

Explanation: Cross fertilization is transfer of pollen from one plant to the stigma of flower borne on different plant of same species.

Question. 3 A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because

(a) Tallness is the dominant trait

(b) Shortness is the dominant trait

(c) Tallness is the recessive trait

(d) Height of pea plant is not governed by gene 'T' or 't'

Answer. (a)

Explanation: According to law of dominance, a trait is represented by two contrasting factors of a gene in a heterozygous individual; the allele/factor that can express itself in heterozygous individual is called as dominant trait. The other factor whose effect is masked by presence of dominant factor, is called recessive factor.

Question. 4 Which of the following statement is incorrect?

(a) For every hormone there is a gene

(b) For every protein there is a gene

(c) For production of every enzyme there is a gene

(d) For every molecule of fat there is a gene

Answer. (d)

Explanation: Fat biosynthesis occurs through metabolic reaction.

Question. 5 If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds production in F1 generation are

(a) Round and yellow

(b) Round and green

(c) Wrinkled and green

(d) Wrinkled and yellow

Answer. (a)

Explanation: The cross between RR yy and rr YY seeds will obtain RrYy offspring which will exhibit round and yellow phenotype as these traits are dominant one.

Question. 6 In human males all, the chromosomes are paired perfectly except one. This/these unpaired chromosome is/are

(i) Large chromosome

(ii) Small chromosome

(iii) Y-chromosome

(iv) X-chromosome

(a) (i) and (ii)

(b) (iii) only

(c) (iii) and (iv)

(d) (ii) and (iv)

Answer. (c)

Explanation: Human males are hemizygous for X and Y chromosomes.

Question. 7 The maleness of a child is determined by

(a) The X-chromosome in the zygote

(b) The Y-chromosome in zygote

(c) The cytoplasm of germ cell which determines the sex

(d) Sex is determined by chance

Answer. (b)

Explanation: The maleness of a child is determined by presence of Y-chromosome in zygote.

Question. 8 A zygote which has an X-chromosome inherited from the father will develop into a

(a) Boy

(b) Girl

(c) X-chromosome does not determine the sex of a child

(d) Either boy or girl

Answer. (b)

Explanation: Humans follow XX- XY mechanism of sex determination.

Question. 9 Select the incorrect statement

(a) Frequency of certain genes in a population change over several generations resulting in evolution.

(b) Reduction in weight of the organism due to starvation is genetically controlled.

(c) Low weight parents can have heavy weight progeny.

(d) Traits which are not inherited over generations do not cause evolution.

Answer. (b)

Explanation: The weight reduction due to starvation is environmentally determined factor.

Question. 10 New species may be formed if

(i) DNA undergoes significant changes in germ cells.

(ii) Chromosome number changes in the gamete.

(iii) There is no change in the genetic material

(iv) Mating does not take place

(a) (I) and (ii)

(b) (I) and (iii)

(c) (ii), (iii) and (iv)

(d) (i), (ii) and (iii)

Answer. (a)

Explanation: Change in genetic material leads to reproductive isolation of population into a new species.