RAVI MATHS TUITION CENTER , CHENNAI- 82. WHATSAPP - 8056206308

Heredity And Evolution T1

10th Standard

Science

16 x 1 = 16

1) A mendelian experiment consisted of breeding tall pea plants bearing violet flowers with short pea plants bearing white flowers. The progeny all bore violet flowers, but almost half of them were short. This suggests that the genetic make-up of the tall parent can be depicted as

(a) TTWW (b) TTww (c) TtWW (d) TtWw

2) An example of homologous organs is

(a) Our arm and a dog's fore-leg (b) Our teeth and an elephant's tusks.

(c) Potato and runners of grass. (d) all of the above

3) In evolutionary terms, we have more in common with

(a) A Chinese school-boy. (b) A chimpanzee (c) A spider (d) A bacterium

4) Exchange of genetic material takes place in

(a) vegetative reproduction (b) asexual reproduction (c) sexual reproduction (d) budding

5) 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'

6) If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds produced in FI generation are

(a) round and yellow (b) round and green (c) wrinkled and green (d) wrinkled and yellow

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

8) 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 controled.

(c) Low weight parents can have heavy weight progeny

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

9) Two pea plants one with round green seeds (RRyy) and another with wrinkled yellow (rrYY) seeds produce F_1 progeny that have round, yellow (RrYy) seeds. When F_1 plants are selfed, the F_2 progeny will have new combination of characters. Choose the new combination from the following:

(i) Round, yellow

(ii) Round, green

(iii) Wrinkled, yellow

(iv) Wrinkled, green

(a) (i) and (ii) (b) (i) and (iv) (c) (ii) and (iii) (d) (i) and (iii)

10) Select the correct statement

(a) Tendril of a pea plant and phylloclade of Opuntia are homologous.

(b) Tendril of a pea plant and phylloclade of Opuntia are analogous

(c) Wings of birds and limbs of lizards are analogous

(d) Wings of birds and wings of bat are homologous

11) The two versions of a trait (character) which are brought in by the male and female gametes are situated on

(a) copies of the same chromosome (b) two different chromosomes (c) sex chromosomes

(d) any chromosome

12) In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F_2 is

(a) 1 : 3 (b) 3 : 1 (c) 1 : 1 (d) 2 : 1

13) The theory of evolution of species by natural selection was given by

(a) Mendel (b) Darwin (c) Morgan (d) Lamarck

14) Which one of the following is not one of the direct conclusions that can be drawm from Mendel's experiment?

(a) Only one parental trait is expressed

(b) Two copies of each trait is inherited in sexually reproducing orgainsm

(c) For recessive trait to be expressed, both copies should be identical

(d) Natural selection can alter frequency of an inherited trait

15) A section of DNA providing information for one protein is called

(a) Nucleus (b) Chromosomes (c) Trait (d) Gene

16) Which of the following is controlled by genes?

(i) Weight of a person (ii) Height of a person

(a) only 1 (i) (b) only (ii) (c) both (i) and (ii) (d) Sometimes (i) and sometimes (ii)

4 x 1 = 4

17) **Assertion:** Every germ cell will take one chromosome from each pair of parents.

Reason: These chromosomes may be either from maternal or paternal origin.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

18) **Assertion:** Natural selection in a population of organisms leads to variation.

Reason: It results in adaptations in the population of organisms to fit their environment better.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

19) **Assertion:** Evolution took place due to natural selection

Reason: This also leads to variations which is seen in the species.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

20) **Assertion:** A DNA can change the number of chromosomes in it.

Reason: Two cells with different number of nucleus cannot fuse.

Codes

(a) If both assertion and reason are true and the reason is correct explanation of assertion.

(b) If both assertion and reason are true but reason is not a correct explanation of assertion.

(c) If assertion is true and reason is false.

(d) If both assertion and reason are false.

10 x 2 = 20

21) Only variations that confer an advantage to an individual organism will survive in a population. Do you agree with this statement? Why or why not?

22) Why are the small numbers of surviving tigers a cause of worry from the point of view of genetics?

23) In evolutionary terms, can we say which among bacteria, spiders, fish and chimpanzees have a better body design? Why or why not?

24) A new born has an XX pair of chromosomes. What is the sex of the new born baby?

25) Why did Mendal choose pea plant for his experiments?

26) What are homologous organs? Can the wings of a butterfly and the wings of a bat be regarded as homologous?Why?

27) Give an example of a body characteristics used to determine how close two species are in terms of evolution and explain it.

28) Explain the terms :
(i) Speciation
(ii) Natural selection

29) List three factors that provide evidences in favour of evolution in organisms and state the role of each in brief.

30) Explain with an example for each, how the following provides evidences in favour of evolution in organisms :
(i) Homologous organs
(ii) Analogous organs
(iii) Fossils.

7 x 3 = 21

31) How is the equal genetic contribution of male and female parents ensured in the progeny?

32) What are fossils? What do they tell about the process of evolution?

33) How is the sex of the child determined in human beings?

34) State the meaning of inherited and acquired traits. Which of the two is not passed onto the next generation? Explain with the example.

35) Define the term 'evolution'. "Evolution cannot be equated with progress". Justify this statement

36) "It is possible that a trait is inherited but may not be expressed." Give a suitable example to justify this statement.

37) How do Mendel's experiment show that traits are inherited independently?

1 x 4 = 4

38) Sex determination is the method by which distinction between males and females is established in a species. The sex of an individual is determined by specific chromosomes. These chromosomes are called sex chromosomes or allosomes. X and Y chromosomes are called sex chromosomes. The normal