Heredity

1. Which of the following is totally impossible outcome of Mendels Experiment?

a. 3 tall 1 short plant b. 24 tall and 8 short plants c. 8 tall and 0 short plants d. 4 tall plants and 1 medium height plant.

2. Which of the following is not a direct conclusion that can be drawn from Mendels Experiment?

a. Only one parental trait is expressed b. Two copies of each trait is inherited in sexually reproducing organism c. For recessive trait to be expressed, both copies should be identical d. Natural selection can alter frequency of an inherited trait.

3. Which one is a possible progeny in F2 generation of pure bred tall plant with round seed and short plant with wrinkled seeds?

a. Tall plant with round seeds b. Tall plant with wrinkled seeds c. Short plant with round seed d. All of the above

4. Which section of DNA provides information for one protein?

a. Nucleus b. Chromosomes c. Trait d. Gene

5. Which of the following is not controlled by genes?

1. Weight of a person 2. Height of a person a. only 1 b. only 2 c. both 1 and 2 d. sometimes 1 and sometimes 2

6. What is the probability that the male progeny will be a boy?

a. 50% b. 56% c. 47.43% d. It varies

7. Who have a perfect pair of sex chromosomes?

a. Girls only b. Boys only c. Both girls and boys d. It depends on many other factors

8. With whom you can associate theory of evolution?

a. Charles Darwin b. Mendel c. Stanley miller d. Harold Urey

9. Which of the following can be called a characteristic?

a. Plants can photosynthesis b. We have 2 eyes c. Mango tree is multicellular d. All of these

10. Homologous organ have

a. Same structure, same function b. Different structure, different function c. same structure, different function d. different structure, same function. Exchange of genetic material takes place in

11. In which type of reproduction genetic exchange takes place?

(a) Vegetative reproduction (b) Asexual reproduction (c) Sexual reproduction (d) Budding

12. 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 fertilisation.

13. 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'.

14. 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.

15 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

16. 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

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

18. 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

19 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.

20. 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)

Question. 11 Two pea plants, one with round green seeds (RRyy) and another with wrinkled yellow (rrYY) seeds produce F1 progeny that have round, yellow (RrYy) seeds. When F1 plants are selfed,

the F2 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)

22. A basket of vegetables contains carrot, potato, radish and tomato. Which of them represent the correct homologous structures?

(a) Carrot and potato (b) Carrot and tomato (c) Radish and carrot (d) Radish and potato

23. 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 bird and wings of bat are homologous

24. If the fossil of an organism is found in the deeper layers of earth, then we can predict that

(a) The extinction of organism has occurred recently

(b) The extinction of organism has occurred thousands of years ago

(c) The fossil position in the layers of earth is not related to its time of extinction

(d) Time of extinction cannot be determined

25 Which of the following statements is not true with respect to variation?

(a) All variations in a species have equal chances of survival.

(b) Change in genetic composition results in variation.

(c) Selection of variants by environmental factors forms the basis of evolutionary processes.

(d) Variation is minimum in asexual reproduction.

26. A trait in an organism is influenced by

(a) Paternal DNA only

(b) Maternal DNA only

(c) Both maternal and paternal DNA

(d) Neither by paternal nor by maternal DNA

27 Select the group which shares maximum number of common characters

(a) Two individuals of a species (b) Two species of a genus (c) Two genera of a family (d) Two genera of two families

28. According to the evolutionary theory, formation of a new species is generally due to

(a) Sudden creation by nature

(b) Accumulation of variations over several generations

(c) Clones formed during asexual reproduction

(d) Movement of individuals from one habitat to another

29. From the list given below, select the character which can be acquired but not inherited

(a) Colour of eye (b) Colour of skin (c) Size of body (d) Nature of hair

30. 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

31. Select the statements that describe characteristics of genes

(i) Genes are specific sequence of bases in a DNA molecule

(ii) A gene does not code for proteins

(iii) In individuals of a given species, a specific gene is located on a particular chromosome

(iv) Each chromosome has only one gene

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

32. In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F2 is

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

33 The number of pair(s) of sex chromosomes in the zygote of humans is

(a) One (b) Two (c) Three (d) Four

34 The theory of evolution of species by natural selection was given by

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

35. Some dinosaurs had feathers although they could not fly but birds have feathers that help them to fly. In the context of evolution this means that

(a) Reptiles have evolved from birds

(b) There is no evolutionary connection between reptiles and birds

(c) Feathers are homologous structures in both the organisms

(d) Birds have evolved from reptiles.