

# EDUCOM ACADEMY

## Important Questions

### Chapter 9

#### Heredity and Evolution

#### 1 Marks Questions

1. Select the group which shares maximum number of common characters-

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

**Ans. (d) two individuals of a species**

2. Two pea plants one with round green seeds (RRyy) and another with wrinkled yellow (rrYY) seeds produce  $F_1$  progeny having round, yellow (RrYy) seeds. When  $F_1$  plants are selfed, the  $F_2$  progeny will have the following combination of characters

- (a) 15:1
- (b) 9:3:3:1
- (c) 9:3:4
- (d) 12:3:1

**Ans. (b) 9:3:3:1**

3. 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 structure in both the organisms
- (d) Birds have evolved from reptiles.

**Ans. (d) Birds have evolved from reptiles.**

4. What is monohybrid cross?

Ans. The cross which occurs between the plants showing two alternate forms of a trait (character).

5. What are autosomes and sex chromosomes?

Ans. Humans cell contain 23 pairs of chromosomes. Out of 23 pairs, 22 pairs are called autosomes, rest of 1 pair, which determine the sex of child is called sex chromosome.

6. Which of the following scientist gave the principles of inheritance?

- (a) Mendel
- (b) Griffin
- (c) Johanssen
- (d) Watson and Crick

Ans. (a) Mendel

7. Which of the following is not correct-

- (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.

**Ans. (b) For every protein there is a gene.**

8. According to the evolutionary theory formation of a new species occurs 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.

**Ans. Accumulation of variations over several generations.**

9. Who coined the term 'gene'?

Ans. Johanssen (1909) coined the term gene.

10. What are dominant genes?

Ans. Gene which expresses itself is called dominant gene.

11. The concept of origin of species by natural selection was given by.

- (a) lamarck
- (b) weismann
- (c) Darwin
- (d) Linnaeus

**Ans. (c) Darwin**

12. It a round green seeded pea plant (RRYY) is crossed with wrinkled yellow seeded pea plant (rr yy) the seeds to be produced in F1 generation will be.

- (a) Wrinkled and yellow
- (b) round and green
- (c) wrinkled and green
- (d) round and yellow.

**Ans. (b) round and green**

13. The genetic constitution of an organism is called.

- (a) Genotype
- (b) phenotype
- (c) variation
- (d) gene.

**Ans. (a) Genotype**

14. Write the scientific name of the plant on which Mendel carried out his experiments.

Ans. *Pisum sativum*

15. How many autosomes are present in human sperm?

Ans. 22

16. Two pink colored flowers on crossing results in 1 red, 2 pink and 1 white flower progeny. The nature of the cross is-

- (a) cross fertilization
- (b) self pollination
- (c) double fertilization
- (d) no fertilization

**Ans. (a) cross fertilization**

17. A basket of vegetable contains carrot, potato, radish, and tomato. Which of them represent the correct homologous structure

- (a) carrot and potato
- (b) carrot and tomato
- (c) radish and carrot
- (d) radish and potato

**Ans. (c) Radish and carrot.**

18. Mendel proposed that every character is controlled by-

- (a) one factor
- (b) two factors
- (c) one chromosome
- (d) two chromosomes

**Ans. (b) Two factors.**

19. Who is called father of genetics?

Ans. Gregor Mendel.

20. What is the scientific name of human being?

Ans. *Homo sapiens*.

21. The theory of chemical evolution of life was experimentally demonstrated by-

- (a) Oparin



- (b) Miller and Urey
- (c) Mendel
- (d) Darwin

**Ans. (b) Miller and Urey**

22. Genetics is the study of-

- (a) resemblances amongst individuals
- (b) heredity and environment
- (c) differences amongst individuals
- (d) Heredity and variations.

**Ans. (d) Heredity and variations.**

23. Wing of a bird and wing of an insect are

- (a) Homologous organs
- (b) analogous organs
- (c) vestigial organ
- (d) both (a) and (b)

**Ans. (a) Homologous organs**

24. What is heredity?

Ans. The inheritance of character from parents to offsprings is called heredity.

25. What are Mendelian factors?

Ans. Heredity units which inherit character from parents to offsprings are called Mendelian factors.

26. 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

**Ans. (c) TtWW**

27. 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.

**Ans. (d) All of the above.**

28. In evolutionary terms, we have more in common with

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

**Ans. (a) A Chinese school-boy.**

29. What happened when Mendel crossed two traits of a character in a pea plants?

Ans. Only dominant trait appeared in F1

30. Who provided experimental evidence to support theory of origin of life from inanimate matter?

Ans. Miller and Urey

31. A normal pea plant bearing colored flowers suddenly start producing white flowers. What could be the possible cause?

Ans. The appearance of white flowers is due to mutation.

32. Mention any two recessive traits of garden pea.

Ans. Dwarf (height of plant), wrinkled seed

33. What is called phylogenetic system of classification?

Ans. Classification based on evolutionary relationships of organisms.

34. What will be the percentage of ab gametes produced by AaBb parent?

Ans. 25 percent

35. Mendel crossed a pure white recessive pea plant with a dominant pure red flowered

plant. What will be the first generation f hybrids.?

Ans. Allred

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36. Name the chemicals which were essential for origin of life.

Ans. Proteins and nucleic acid

37. Why males are called heterogametic?

Ans. Because they have dissimilar sex chromosomes.

38. What is the percentage possibility a couple of having daughters?

Ans. 50 percent

39. Name 2 organisms in which sex determination is regulated by environmental factors.

Ans. Turtle, lizard

40. Clones of sheep are carbon copy of each other except physical health. What kind of variation is it?

Ans. Phenotypic variation



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