

Class: 12
Subject: Biology
Topic: Evolution
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

1. A woman with albinic father marries an albinic man. The proportion of her progeny of her progeny is

- A. 2 normal: 1 albinic
- B. All normal
- C. All albinic
- D. 1 normal: 1 albinic

Ans. D

Solution:

Albinism is an autosomal recessive disorder. Hence the pedigrees could be designed as,

Father: aa

Woman: Aa

Man (husband): aa

Aa X aa

Aa, aa

1:1

2. Alleles represent

- A. Different forms of a gene
- B. Same loci on homologous chromosomes
- C. Two or more forms
- D. All the above

Ans. D

Solution:

Alleles are different forms of a gene located in the same loci of a homologous chromosome.

3. An individual having similar unit factors of a character is

- A. Heterozygote
- B. Homozygote
- C. Dominant
- D. Recessive

Ans. B

4. Alleles are

- A. A pair of genes governing specific character such as tallness or dwarfness
- B. Multiple forms of genes
- C. Genes governing eye characters
- D. Genes present in allosomes

Ans. B

Solution:

Different forms of a gene located on the same locus of homologous chromosomes

5. In *Pisum sativum* there are 14 chromosomes. How many pairs with different chromosomal composition can be prepared

- A. 14
- B. 7
- C. 214
- D. 27

Ans. B

Solution: 7 pairs of homologous chromosomes.

6. Pure tall plants are crossed with pure dwarf plants. In the F₁ generation all plants were tall. These plants of F₁ generation, were

selfed and the ratio of tall to dwarf plants was obtained as 3:1. This is due to

- A. Dominance
- B. Inheritance
- C. Co-dominance
- D. Heredity

Ans. A

7. DNA polymerase helps in
- Splitting of two DNA strands
 - Proof reading of DNA
 - Renaturation of DNA
 - Joining monomers of DNA

Ans. D

Solution:

Monomers of DNA are the single nucleotide units which are joined together during the polymerization of DNA by DNA polymerase. The process is known as DNA replication

8. Pneumococcus experiment proves that
- DNA is genetic material
 - Bacteria undergo binary fission'
 - Bacteria do not reproduce sexually
 - At times RNA controls production of DNA and proteins

Ans. A

9. Mendel's work was got republished in 'Flora' by
- De Vries
 - Tschermak
 - Correns
 - All the above

Ans. A

10. Match the columns and find the correct combination

| | I | | II |
|---|-----------------------|---|-----------------------------------|
| a | Down's syndrome | p | Additional sex chromosome |
| b | Cri du chat syndrome | q | Loss of segment of chromosome 5 |
| c | Klinfelter's syndrome | r | Absence of sex chromosome |
| d | Turner's syndrome | s | Presence of two extra chromosomes |
| | | t | |

- a-s, b-q, c-p, d-r
- a-s, b-p, c-q, d-r
- a-t, b-s, c-p, d-q
- a -s, b-q, c -r, d-p

Ans. A

11. Pure line is connected with the Development of

- A. Homozygosity
- B. Heterozygosity
- C. Heterozygosity and linkage
- D. Homozygosity ad self assortmen

Ans. D

12. Length of Y-chromosome is

- A. 2.0
- B. 3
- C. 4
- D. 5

Ans. A

13. Sickle cell anaemia has not been eliminated from African population because

- A. It is controlled by dominant genes
- B. It is controlled by recessive genes
- C. It is not a fatal disease
- D. It provides immunity against genes

Ans. D

14. Chromosome banding was discovered by

- A. Casperson et al
- B. Muller
- C. Berg et al
- D. Christian de Duve

Ans. A

15. A phenomenon where the third base of tRNA at its 5' end can pair with a noncomplementary base of mRNA is called

- A. Colinearity
- B. Universality
- C. Wobbling
- D. Degeneracy

Ans. C

16. Larger subunit of ribosome helps in producing

- A. Gyrase
- B. Topoisomerase
- C. Peptidyl transferase
- D. RNA polymerase

Ans. C

Solution:

The peptidyl transferase helps in the formation of polypeptide bonds in between the amino acids

17. A nucleotide is

- A. Sugar + Phosphate
- B. Base + Sugar + Phosphate
- C. Base + Sugar - OH
- D. (Base + Sugar + Phosphate) n

Ans. B

18. Lampbrush chromosomes are so called because

- A. They were discovered by Dr. Lampbrush
- B. Can be seen by an ordinary lamp
- C. They resemble the brush used to clean the lamp
- D. None of these

Ans. C

19. A normal woman is married to a colour blind man. The children are expected to be

- A. All normal
- B. 50% sons are colour blind
- C. All daughters are normal but carrier whereas all sons are normal phenotypically as well as genotypically
- D. 50% daughters are colour blind

Ans. C

Solution:

XX X XcY

XcX, XY

20. A pleiotropic gene is

- A. IA
- B. HbS
- C. HbA
- D. 1B

Ans. A

Solution:

HbS is the defective haemoglobin gene responsible for sickle cell anaemia.

askITians