

Class: 12

Subject: Biology

Topic: Molecular Basis of Inheritance

No. of Questions: 20

Duration: 60 Min

Maximum Marks: 60

1. Sex chromosomes are also called

- A. Autosomes
- B. Allosomes
- C. Heterosomes
- D. Homosomes

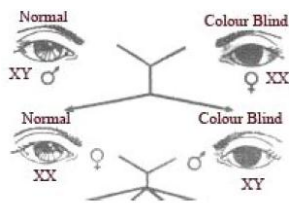
Ans. B

2. A colour blind woman marries a normal visioned male. In the offspring

- A. Both sons and daughters are colour blind
- B. All daughters are colour blind
- C. All sons are normal
- D. All sons are colour blind

Ans. D

Solution:



3. Number of chromosomes in Down's syndrome is

- A. 46
- B. 47
- C. 48
- D. 49

Ans. B

Solution:

46 + 21st chromosome= 47

4. Diagrammatic representation of the chromosomes of an organism arranged according to their size is known as

- A. Genome
- B. Karyotype
- C. Idiogram
- D. None of the above

Ans. C

5. Which is important for transcription

- A. CAAT box
- B. Promoter
- C. DNA polymerase
- D. DNA methylase

Ans. B

Solution;

Promoter is the DNA region where the transcription initiation takes place

6. Asymmetric karyotype is the one in which

- A. There are more metacentric chromosomes
- B. A few metacentric chromosomes
- C. Difference between smallest and largest chromosomes is large
- D. Both B and C

Ans D

7. In a dihybrid cross AABB x aabb, F₂ progeny of AABB, AABb, AaBB and AaBb occurs in the ratio of

- A. 1:1:1: 1
- B. 9:3:3:1
- C. 1:2:2:1
- D. 1:2:2:4

Ans. D

8. In an experiment on Pea plant, pure plants with yellow round seeds (YYRR) were crossed with plants producing green wrinkled seeds (yyrr). What will be phenotypic ratio of F progeny?

- A. 9 yellow round: 3 round green : 3 wrinkled yellow: 1 green wrinkled
- B. All yellow round
- C. 1 around yellow: 1 around green: 1 wrinkled yellow: 1 wrinkled green
- D. All wrinkled green

Ans.B

Solution:

YYRR X yyrr

YyRr F1

9. In genetic code dictionary, codons used to code for all the 20 essential amino acids are

- A. 20
- B. 60
- C. 61
- D. 64

Ans. D

10. Balbiani rings (puffs) are sites of

- A. DNA replication
- B. RNA and protein synthesis
- C. Synthesis of polysaccharides
- D. Synthesis of lipids

Ans. B

Solution:

Puffs are the sites of active transcription

11. Lampbrush chromosomes found in oocytes occur in

- A. Leptotene
- B. Zygotene
- C. Pachytene
- D. Diplotene

Ans. D

12. Blood groups were first discovered by

- A. Karl Landsteiner
- B. Muller

- C. Mendel
- D. Morgan

Ans. A

13. A blue fowl obtained from mating between black and white fowls, is self-crossed. The F ratio is

- A. 1 black: 2 white: 1 blue
- B. 2 black: 1 white: 1 blue
- C. 1 black: 2 blue: 1 white
- D. None of the above

Ans. C

Solution:

It's an example of incomplete dominance where the phenotypic ratio of F₂ is 1:2:1

14. Two Pea plants were subjected to cross pollination. of the 183 plants produced in the next generation 94 plants were found to be tall and 89 plants were found to be dwarf. The genotypes of the two parent plants are likely to be

- A. Tt and tt
- B. TT and TT
- C. TT and tt
- D. Tt and Tt

Ans. A

15. Which purine is found in RNA?

- A. Guanine
- B. Cytosine
- C. Thymine
- D. Uracil

Ans. A

Solution:

A and G are the purines

16. The chromosomes that do not have centromere are

- A. Submetacentric
- B. Acentric
- C. Telocentric
- D. Metacentric

Ans. B

17. DNA can be
- A-DNA
 - B-DNA
 - Z-DNA
 - All the above

Ans. D

18. If haploid chromosome number is 10, the monosomic number shall be
- 9
 - 18
 - 10
 - 19

Ans. D

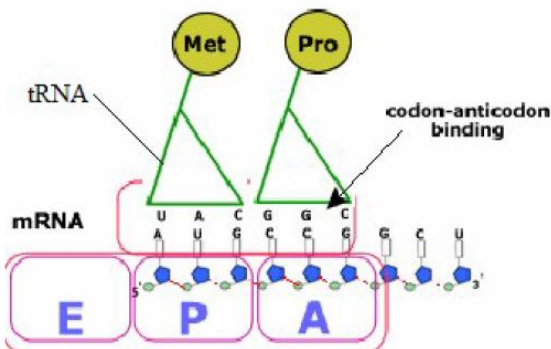
Solution:

$$2n-1=19$$

19. Anticodon is made of
- Three adjacent nitrogen bases
 - Unpaired triplet bases on mRNA
 - Paired triplet of nitrogen bases on
 - Unpaired triplet of nitrogen bases at one end of tRNA

Ans. D

Solution:



20. The term chromosome was introduced by
- Strasburger
 - Benda
 - Waldeyer
 - Hofmeister

Ans. C