

Yashwantrao Chavan College of Science, Satara.

B.Sc. Part I Semester II

Paper- IV Genetics

Question Bank –

Multiple choice questions

1. Aneuploidy is also called as.....
a. Polyploidy b. Heteroploidy c. Deletion d. Triploidy
2. Trisomy of 13 chromosome is
a. Down's syndrome b. Patau's syndrome
c. Turner's syndrome d. Klinefilter syndrome
3. XX-XO type of sex determination is also known as _____
a) Haploid-diploid b) Honey bee type c) Protenor d) All of these
4. In honey bee, fertilized egg give rise to _____
a) male b) female c) Drone d) Sterile male
5. Cri-du-chat syndrome is due to _____
a) Nullsomy b) Duplication c) Deletion d) Inversion
6. The chemicals resemble the normal base of DNA are _____
a) Alkylating agents b) Physical agents c) High energy d) Base analogues
7. Alleles are
a) Alternate forms of genes b) Linked genes
c) Chromosomes that have crossed over d) Homologous chromosomes
8. Pea plants were used in Mendel's experiments because
a) They were cheap b) They had contrasting characters
c) They were available easily d) All of the above

9. The sex index value of intersex is_____
- a) Above 1.0 b) Below 0.5 c) In between 0.5 & 1.0 d) Above 1.5
10. In Bonellia, if the developing larvae are reared close to adult female_____
- a) they become attached to proboscis and become male b) they develop into females
c) they become sterile d) they become intersexes
11. Sudden change in genetic mutation is_____.
- a) Mutation b) Dominancy c) Interaction d) Lethality
12. The geometrical device that helps to find out all the possible combinations of male and female gametes is known as
- a) Bateson Square b) Mendel Square c) Punnett Square d) Mendel's Cube
13. The genotypic ratio of a monohybrid cross is
- a) 1:2:1 b) 3:1 c) 2:1:1 d) 9:3:3:1
14. Who is known as the "Father of Genetics"?
- a) Morgan b) Mendel c) Watson d) Bateson
15. An individual's collection of genes is called_____
- (a) Genotype (b) Phenotype (c) Trait (d) None of the above
16. An organism in $4n$ condition is called _____
- a) nullisomy b) tetraploidy c) trisomy d) aneuploidy
17. A genetic disorder called Down's syndrome is due to_____
- a) Polyploidy b) Nullisomy c) Trisomy d) Monosomy
18. In case of Down syndrome the number of chromosome per somatic cell is_____
- a) 45 b) 46 c) 47 d) 48
19. The crossing of F1 to either of the parents is known as
- a) Test cross b) Back cross c) F1 cross d) All of the above
20. The genotypic ratio of a monohybrid cross is
- a) 1:2:1 b) 3:1 c) 2:1:1 d) 9:3:3:1
21. Who is known as the "Father of Genetics"?
- a) Morgan b) Mendel c) Watson d) Bateson
22. Genes which affects the survivability of an individual are called_____
- a) Dominant genes b) Lethal genes c) Silent genes d) Recessive genes
23. The mutations which are artificially carried out are_____
- a) Natural mutation b) Linkage c) Induced gene mutation d) all of above

24. The plant Mendel used to study inheritance of two genes is _____
- (a) Apple
 - (b) Mango
 - (c) Garden pea
 - (d) Potato
25. In a monohybrid cross between two heterozygous individuals, percentage of pure homozygous individuals obtained in F1 generation will be _____
- (a) 25 %
 - (b) 50 %
 - (c) 75 %
 - (d) 100 %
26. In Drosophila and human being the chromosomal type of sex determination is ...
- a) XX-XO b) ZZ-ZW c) XX-XY d) Haploid-diploid
27. In drosophila super females have the sex index of _____
- a) 1.0 b) 1.5 c) 0.75 d) 0.5
28. 24. The allele which is unable to express its effect in the presence of another is called.....
- (a) Co-dominant
 - (b) Supplementary
 - (c) Complementary
 - (d) Recessive
29. An individual's collection of genes is called _____
- (a) Genotype (b) Phenotype (c) Trait (d) None of the above
30. Name the scientist who discovered the laws of Heredity.
- (a) Gregor Mendel (b) Newton (c) Punnett (d) None of the above
31. Which term represents a pair of contrasting characters?
- a) Heterozygous
 - b) Homozygous
 - c) Codominant genes
 - d) Allelomorphs

Long answer Question

1. Describe the genetic balance theory of sex determination.
2. Describe the haploid-diploid mechanism of sex determination in honey bee.
3. With suitable examples, describe environmental theory of sex determination.
4. Write about the Molecular basis of Inheritance or Genetic Information?
5. What are lethal gene and explain it with reference to complementary factors
6. Explain multiple alleles with reference to coat colour in rabbit
7. Define interaction of genes and explain it with reference to complementary factors
8. What is linkage? Describe the types of linkage with suitable examples.
9. What is crossing over? Describe the mechanism of crossing over.
10. Write down about Principles of Inheritance.
11. What are Multiple Alleles? Explain it with suitable examples.
12. What is Codominance? Explain it with suitable examples.
13. Describe different types of sex determination mechanisms you have studied
14. Explain the law of segregation
15. Describe law of Dominance (Monohybrid Cross)
16. Give an account on multiple alleles and explain it with reference to ABO blood groups in man.
17. What is mutation? Describe chromosomal mutation due to change in structure of chromosome.
18. What is mutation? Describe the induced gene mutation.
19. Describe the chromosomal theory of sex determination with respect to XX-XO method and XX-XY method.
20. Describe chromosomal theory of sex determination with respect to ZZ- ZO method and ZZ-ZY method .

Short answer Question

1. Polyploidy
2. Aneuploidy
3. Deletion

4. Duplication
5. Monohybrid cross
6. Mendels hybridization technique
7. Inversion
8. Translocation
9. Fully lethal gene
10. Supplementary factor
11. Mendel's Hybridization Technique
12. Back Cross and Test Cross
13. Reciprocal Cross
14. Principle of Dominance (Monohybrid Cross)
15. Principle of Segregation
16. Significance of linkage and crossing over
17. Complete linkage
18. types of genetic Variation
19. Multiple alleles with suitable examples
20. Chemical mutagens
21. ZZ-ZW method of sex determination
22. 11. ZZ-ZO method of sex determination
23. XX-XO method of sex determination
24. XX-XY method of sex determination
25. Incomplete Dominance
26. Reasons behind selecting the Pea plants for hybridization technique
27. Seven Contrasting Characters in Pea plant
28. Co-Dominance
29. Characters of Multiple Alleles
30. ABO Blood group
31. Coat Colour in Rabbit

Seat No.	
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B.Sc part-I Sem-II (NEP-2020) Examination, Oct-Nov 2023

Subject-Zoology (Paper-IV)

Subject code- 90227

Day and Date: Thursday-2/11/2023.

Total marks-[40]

Time-10.30am-12.30pm

Q.1 Answer the following questions choosing the correct alternatives given below them. [8]

1. blood group is universal recipient

- a) B b) A c) AB d) O

2. The best example of incomplete dominance is

- a) *Mirabilis jalapa* b) Lotus c) Rose d) Sunflower

3. ----- is phenotypic monohybrid ratio

- a) 2:1 b) 3:1 c) 4:1 d) 1:3

4. Allele is

- a) Segment of gene b) Form of RNA c) Fragment of gene d) A Mutton

5. Linkage in *Drosophila* was first discovered by.....

- a) Bridges b) Morgan c) Mendel d) Bateson and Punnett

6. An organism is $4n$, this condition is called

- a) Nullisomy b) Trisomy c) Tetraploidy d) Aneuploidy

7. In case of Down's syndrome, the number of chromosomes per somatic cell is

- a) 45 b) 46 c) 47 d) 48

8. Is father of genetics.

- a) Mendel b) Lamark c) Darwin d) Robert Hook

Q.2 Write Long answer (Any two)

[16]

1. Describe co-dominance and incomplete dominance with suitable example
2. Give an account of Law of dominance with suitable example,
3. What do you mean by a mutation. Describe various types of mutation due to change in chromosomal number.
4. Explain multiple alleles with reference to coat colour in rabbit.

Q.3 Write Short Notes on (Any four)

[16]

1. Describe genic balance theory.
2. Explain mechanism of sex determination in human.
3. Complete linkage.
4. Blood group.
5. Supplementary genes.
6. Write a note on polyploidy.