



BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

CHROMOSOMAL BASIS OF INHERITANCE

Check Point 7 1

1. Sutton and Boveri noted that the behaviour of chromosomes was parallel to the behaviour of

A. Genes

B. Chromatids

C. Nucleus

D. nucleolus

Answer: A



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2. Sutton gave chromosomal theory of inheritance, he united the knowledge of chromosomal segregation with

A. Reombination

B. Crossing over

C. Both (a) and (b)

D. Mendelian principle of sechromosomes

Answer: D



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3. Sex-chromosomes are also called as

A. Allosomes

B. Heterosomes

C. autosomes

D. Euchromosomes

Answer: A



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4. Autosomes are

A. Chromosomes having sex-linked characters

B. Chromosomes having somatic characters

C. Chromosomes having both sex-linked and somatic characters.

D. None of the above

Answer: B



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5. Sex chromosome X and Y were discovered by

A. Stevens and Wilson

B. Bridges

C. Henking

D. Mc Clung

Answer: A



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6. Which one is found in males only ?

A. X- Chromosome

B. Y- chromosome

C. 2X- chromosome

D. X+X-chromosome

Answer: B



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7. Which chromosome set is found in male Grasshopper?

A. XY

B. X

C. YY

D. XX

Answer: B



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8. The mechanism of sex determination in birds shows

- A. Male heterogamety
- B. femal heterogamety
- C. Male dominancy
- D. Female dominancy

Answer: B



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9. ZO-ZZ type of sex determination is

- A. Opposite of XX-OX type
- B. Opposite of XX-XY type
- C. Opposite of ZZ-ZW type
- D. Gynanromorphs

Answer: A



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10. Which of the following is true regarding *Drosophila*?

A. $X/A=1$, normal male

B. $X/A=5$, normal female

C. $X/A=1$, super female

D. $X/A=0.5$, super male

Answer: C



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11. A fruitfly exhibiting both male and female traits is

A. Heterozygous

B. Gynandromorph

C. Hemizygous

D. Gynander

Answer: B



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12. In Gynadromorphs

- A. Some cells of body contain XX and some cells with genotype XY
- B. All cells have XX genotype
- C. All cell have XY genotype
- D. All cells with genotype XXY

Answer: A



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13. What is true in case of honeybee?

- A. Male diploid, female haploid
- B. Male diploid, female diploid
- C. Male haploid, female haploid
- D. Male haploid, female diploid

Answer: D



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14. Sex determination by environmental factor is commonly observed in

A. *Drosophila melanogaster*

B. *Mirabilis jalapa*

C. *Meladrium album*

D. *Bonellia viridis*

Answer: D



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15. The plants in which chromosomal basis of sex determination was seen

A. Coccinia

B. Sphaerocarpus

C. Malandrium (Lychnis

D. All of these

Answer: D



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Check Point 7 2

1. A linkage group is explained as

- A. Different groups of genes located on the same
- B. All the linked genes of a chromosome
- C. All genes of a chromosome
- D. None of the above

Answer: B



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2. The number of linkage group found in *Drosophila* is

A. 1

B. 3

C. 2

D. 4

Answer: D



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3. Crossing over bring about

A. Recombination of genes

B. No significant change

C. Sturdy offspring

D. cytoplasmic reorganisation

Answer: A



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4. Crossing over occurs at

A. 2 strand stage

B. 4 strand stage

C. Both (a) and (b)

D. None of these

Answer: B



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5. Somatic crossing over was first reported in fungus, *Aspergillus noduians* by

A. C Stern

B. Morgan

C. G Pontecarvo

D. Bridges

Answer: C



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6. Concept of gene mapping was first suggested by

A. Morgan

B. Bridges

C. Avery

D. Sturtevant

Answer: C



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7. Unit of distance between genes in a chromosome is known as

A. cDNA

B. Morgan

C. CentiMorgan

D. Spacer

Answer: C



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8. Genetic map

A. Shows the stages during the cell division

B. Shows the distribution of various species in a region

C. Establishes site of the genes on a chromosome

D. Establishes the various stages in gene evolution

Answer: C



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9. The concept of sex- linked inheritance was introduced by

- A. Hugo de Vries
- B. TH Morgan
- C. G Pontecarno
- D. Both (b) and (c)

Answer: B



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10. Which of the following is a sex linked character

- A. White-eye in Drosophila
- B. Duffy blood group in human beings
- C. AB blood group in human beings
- D. All of the above

Answer: A



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Check Point 7 3

1. The genes which seem to behave like alleles and have minimum chances of crossing over are called

- A. Isoalleles
- B. Pseudoalleles
- C. Both (a) and (b)
- D. Multiple alleles

Answer: D



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2. When alleles exhibit themselves within the same phenotype it is

- A. Pseudoalleles
- B. Multiple alleles
- C. Isoalleles
- D. None of these

Answer: C



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3. Different mutations referable to the same locus of chromosome give rise to

A. Multiple alleles

B. Pseudoalleles

C. Polygenes

D. Oncogenes

Answer: A



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4. ABO blood group is an example of

A. Pseudoalleles

B. Isoalleles

C. Multiple alleles

D. cytoplasmic inheritance

Answer: C



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5. When a certain character is inherited only through female parent it probably represents

- A. Incomplete dominance
- B. cytoplasmic inheritance
- C. Mendelian unclear inheritance
- D. Multiple plastid inheritance

Answer: B



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6. The two eucaryotic organelles responsible for cytoplasmic inheritance are

A. Lysosomes and mitochondria

B. Chloroplasts and lysosomes

C. Mitochondria and chloroplasts

D. Mitochondria and Golgi complex

Answer: C



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7. Which one is an example of cytoplasmic inheritance ?

A. *Oenothera*

B. *Coccinia indica*

C. *Vallisneria*

D. *Sphaerocarpus*

Answer: A



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8. Shell coiling in *Limnaea* is an example of

- A. Maternal inheritance
- B. Biparental inheritance
- C. Predetermination
- D. Sphaerocarpus

Answer: A



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9. Which one is an example of cytoplasmic inheritance ?

- A. Plastid inheritance
- B. Kappa particle inheritance
- C. sigma particle inheritance
- D. Female sterility in maize

Answer: D



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10. Kappa particles are present in

- A. *Mirabilis jalapa*
- B. *Zea mays*
- C. *Limnea peregra*
- D. *Paramecium aurelia*

Answer: D



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Check Point 7 4

1. The phenomenon of mutation results in

A. Alteration of DNA sequences

B. Changes in the genotype of an organism

C. Changes in the phenotype of an organism

D. All of the above

Answer: D



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2. Alteration in chromosomes results in

- A. Abnormalities or aberrations
- B. Recombination or abnormalities
- C. Aberrations or replication
- D. Replication or recombination

Answer: A



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3. Duplication of same chromosome leads to

A. Allopolyploids

B. Autoallopolyploids

C. Both (a) and (b)

D. Autopolyploids

Answer: D



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4. Tetrasomic and nullisomic can be represented respectively as

A. $2n+2$ and $2n-2$

B. $2n-2$ and $2n+2$

C. $2n+1$ and $2n-1$

D. $2n-1$ and $2n+1$

Answer: A



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5. In man, which of the following genotypes and phenotypes may be the correct result of aneuploidy in sex chromosomes

- A. 22 pairs+XXY males
- B. 22 pairs+XX females
- C. 22 pairs +XY females
- D. None of these

Answer: A



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6. Before a deletion occurred, the gene sequence was ABCDE,now it is

A. ABDDEF

B. FEDCBA

C. ABDEF

D. ABEDCF

Answer: C



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7. The exchange of chromosomal parts between non-homologous chromosomes is known as

A. Translocation

B. Transcription

C. Transduction

D. Translation

Answer: A



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8. Rearrangement of a group of genes within the chromosome in such a way that their

order in the chromosome is same but position is different is referred to as

- A. Inversion
- B. Translocation
- C. Deletion
- D. Interchange

Answer: A



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9. The site in the gene at which the mutations occur with unusually high frequency are:

A. Recons

B. Hotspots

C. Mutons

D. Palindromes

Answer: B



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10. In nature, the rate of mutation is

A. 1×10^{-7}

B. 1×10^{-9}

C. 1×10^{-8}

D. 1×10^{-12}

Answer: A



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11. The point mutation occurs due to

- A. Change in the base pairs of DNA
- B. Change in a single base pair of DNA
- C. Alteration in the base pairs of DNA
- D. Aberrations in the base pairs of DNA

Answer: B



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12. Type of gene mutation, which involves the replacement of purine with another type of base is

A. Transition

B. Transduction

C. Translation

D. Transversion

Answer: D



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13. A mutational event, which changes the codon UGG to UAG is known as

A. Non-sense mutation

B. Point mutation

C. mis-sense mutation

D. Frameshift mutation

Answer: A



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14. A mutation that changes a codon specifying one amino acid to a termination codon is called a

- A. Mis-sense mutation
- B. transition mutation
- C. Non-sense mutation
- D. Frameshift mutation

Answer: C



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15. Frameshift mutation occurs when :

- A. Base is added

B. Base is deleted

C. Base is added or deleted

D. None of the above

Answer: C



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**Chapter Exercises A Taking It Together Assorted
Questions Of The Chapter For Advanced Level
Practice**

1. The first attempt to show linkage in plants was done

A. *Zea mays*

B. *Oenothera lamarckiana*

C. *Pisum sativum*

D. *Lathyrus odoratus*

Answer: D



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2. Different mutations referable to the same locus of chromosome give rise to

A. Multiple alleles

B. Pseudoalleles

C. Polygenes

D. Oncogenes

Answer: A



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3. The recombination frequency between homologous chromosomes never exceed beyond

A. 0.5

B. 0.75

C. 1

D. 0.85

Answer: A



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4. A pair of genes is said to be linked if their recombination frequency in test cross is

A. 0.75

B. 0.5

C. 1

D. Lower than 50%

Answer: D



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5. Complete linkage is observed in

A. Birds

B. Lizards

C. Frog

D. Drosophila

Answer: D



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6. Maize has 10 pairs of chromosomes. How many linkage groups will be present if all the genes are mapped?

A. 15

B. 10

C. 20

D. 40

Answer: B



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7. Variations appear during meiosis due to

A. Crossing over

B. Chromosomal aberrations

C. Polyploidy

D. Mutations

Answer: A



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8. Sutton and Boveri studied..... Behaviour to explain Mendel's laws.

A. Gene

B. Chromosome

C. chromatid

D. Spindle

Answer: B



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9. Morgan worked with *Drosophila melanogaster*, they could be grown on

A. Simple synthetic medium

B. Natural medium

C. Artificial medium

D. All of the above

Answer: A



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10. *Drosophila melanogaster* complete their life cycle in about

- A. Two days
- B. Two weeks
- C. Two months
- D. None of these

Answer: B



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11. The concept of genetic/chromosomal basis of sex-determination was observed in

A. Evening primrose

B. Birds

C. Humans

D. Insects

Answer: D



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12. Cytoplasmic inheritance is due to

A. Plastids

B. Mitochondria

C. Cytoplasmic particles

D. Cytoplasms

Answer: D



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13. Kappa particles are present in

A. Plastids

B. Mitochondria

C. Plasmids

D. Cytoplasm

Answer: D



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14. Kappa particles make an animal killer when their number in an individual is

A. 6

B. 60

C. 400

D. 150

Answer: C



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15. Male sterility was discovered by

A. Rhoades

B. Sonneborn

C. Bycott et. Al.

D. Correns

Answer: A



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16. Kappa paricles were discovered by

A. Correns

B. Sonneborn

C. Rhoades

D. Bycott et.al.

Answer: B



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17. Cytoplasmic male sterility is passed down

A. through bacteriophage

B. Paternally

C. maternally

D. Biparentally

Answer: C



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18. Which one of the following carries extra nuclear genetic material ?

A. Golgi apparatus

B. Ribosomes

C. Chromosome

D. Plastid/Mitochondria

Answer: D



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19. The ultimate source of genetic variation is

:

A. Mutations

B. Natural selection

C. Isolation

D. Hormonal activity

Answer: A



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20. How many linkage groups are present in female and male grasshopper respectively?

A. 0.425

B. 0.508333333333333

C. 0.170833333333333

D. 0.252777777777778

Answer: B



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21. Which of the following is suitable for experiment on linkage ?

A. aaBBxaaBB

B. AABBxaabb

C. AaBbxAaBb

D. AAbbxAaBB

Answer: B



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22. Cis- trans expression of genes is an example of :

A. Mutation

B. Intergenic crossing over

C. Intragenic crossing over

D. cytoplasmic inheritance

Answer: C



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23. When an animal has both the characters of male and female, it is called:

A. Intersex

B. Gynandromorph

C. Super female

D. super male

Answer: B



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24. Mutation altering nucleotide sequence within a gene are

A. Frameshift mutations

B. Base pair substitutions

C. Both (a) and (b)

D. None of these

Answer: C



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25. the chance of elimination of genes from a small populaton is an example of:

A. Selection pressure

B. Speciation

C. Adaptation

D. genetic drift

Answer: D



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26. Lethal gene of Drosophila is

A. Curly wings (Cy)

B. Plum eyes(Pm)

C. Stubbles(sub)

D. All of these

Answer: D



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27. Smallest paart of DNA which takes part in crossing over is:

A. Gane

B. Allele

C. Recon

D. None of these

Answer: C



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28. Assume that a cross over and resulting chiasma occurred between two gene loci 100% of the time. What would be the percentage of recombinant chromosomes among the progeny?

A. 1

B. 0.5

C. 0.25

D. 0.75

Answer: B



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29. A cell is heterozygous at three gene loci. How many different types of gametes can it form?

A. 2

B. 3

C. 6

D. 8

Answer: D



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30. An exception to mendel's law is

A. Linkage

B. Purity of gametes

C. Dominance

D. Independent assortment of factors

Answer: A



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31. Crossing over is nil between genes located near

A. Telomere

B. Centromere

C. Both (a) and (b)

D. None of these

Answer: C



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32. XX-XO sex chromosome complement

occurs in

A. Honeybee

B. birds

C. Gorilla

D. Cockroach

Answer: D



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33. Females are heterogametic amongst

A. Human beings

B. Drosophila

C. Geomatrid moth

D. Chicken

Answer: C



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34. A pair of genes are linked if their recombination frequency in test cross is

A. lower than 50%

B. 0.5

C. 0.75

D. 1

Answer: A



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35. Increase in age decreases

A. Crossing over

B. Linkage

C. Polyploidy

D. Mutations

Answer: A



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36. Pentasomic can be denoted by

A. $2n+2$ $2n$

B. $2n+3$

C. $2n+1$

D. $2n+4$

Answer: B



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37. Recessive mutations are expressed in:

- A. Next generation
- B. Homozygous condition
- C. Same generation
- D. Heterozygous condition

Answer: B



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38. Which of the following will cause a more effective mutation?

- A. One codon
- B. One base deletion
- C. Base substitution
- D. Base deamination

Answer: B



39. A single gene mutation affecting more than one phenotype is called

- A. Azotrophic
- B. Pleiotropic
- C. Auxotrophic
- D. Pleiotrophic

Answer: B



40. Any change during cell division that result is loss or gain of one or more chromosomes is known as :

A. Aneuploidy

B. Euploidy

C. Monoploidy

D. Hypoploidy

Answer: A



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41. Hereditary variations in plants have been produced

A. DDT

B. Auxins

C. X-rays

D. gibberellic acid

Answer: C



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42. Who has introduced X-rays mutations in barley and maze ?

A. Stadler

B. Muller

C. Morgan

D. All of these

Answer: A



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43. A hypothetical series of 20 multiple alleles is known for a certain locus. How many phenotypic classes are possible?

A. 20

B. | 20

C. 240

D. 40

Answer: A



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44. When an amino acid is replaced by another owing to a mutation, it is called

A. Non-sense mutation

B. Point mutation

C. mis-sense mutation

D. Frameshift mutation

Answer: C



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45. Which one of the following is not a mutagen

A. Ethyl methane sulphonate

B. Acetic acid

C. Nitrous acid

D. Ethylene oxide

Answer: B



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46. The ultimate biological unit which controls heredity, is called :

A. Genotype

B. gene

C. Genome

D. Chromosome

Answer: B



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47. Bent', a dominant sex-linked allele B, in the mouse results in a short, crooked tail. Its recessive allele, b produce normal tails. If a normal tailed femal is mated to a bent- tailed male, what phenotypic ratio should occur in the F1?

A. Bent, normal

B. normal, bent

C. bent, bent

D. normal, normal

Answer: A



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48. The frequency of a mutant gene in a population is expected to increase, if the gene is

- A. Dominant
- B. favourably selected
- C. Recessive
- D. Sex-linked

Answer: B



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49. A species or type of a plant derived from doubling the chromosome of F1 hybrid of two similar species is known as

A. Autopolyploid

B. Amphidiploid

C. autodiploid

D. Hexaploid

Answer: A



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50. Abyssinian oat is a tetraploid with 28 chromosomes. The common cultivated oat is a hexaploid in the same series. How many chromosomes does the common oat possess?

A. 28

B. 34

C. 38

D. 42

Answer: D



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51. First definite proof of mutagenic action (effect) of X-rays was discovered or given by or the person known to use X-rays to cause mutation is

A. Leeuwenhoek

B. Hooper

C. Lister

D. Muller

Answer: D



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52. Tautomerisation is seen in

A. Translocation

B. Inversion

C. Transition

D. Duplication

Answer: C



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53. Dhatura is a classical example of a

A. Trisomic

B. Monosomic

C. Triploid

D. Monoploid

Answer: A



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54. If the haploid number of chromosomes in a plant is 12, then the number of chromosomes in monosomic is

A. 25

B. 23

C. 22

D. 26

Answer: B



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55. Beadle and Tatum induced mutation in *Neurospora crassa* by

A. Y-rays

B. UV-rays

C. X-rays

D. chemical mutagen

Answer: B



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56. The mutation in germ cells

A. Are more deleterious

B. Are less deleterious

C. Can be detected only in the next generation

D. Can be detected in the same generation of an individual

Answer: C



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57. The smallest element or sub division of a gene, which can be affected by a mutation is

A. Muton

B. Recon

C. Interferon

D. Cistron

Answer: A



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58. Mutations do not result in

A. Death of individual

B. Better progenies

C. Hybrid vigour

D. Change in the genetic constitution of
cell

Answer: C



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59. How many gametes contain a dominant mutation, if $1/1500$ babies show the new phenotypes?

A. $\frac{1}{15000}$

B. $\frac{1}{20000}$

C. $\frac{1}{30000}$

D. $\frac{1}{45000}$

Answer: C



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60. If the haploid number of chromosome is 10. Then, what is a terasomic number?

A. 20

B. 10

C. 22

D. 40

Answer: C



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61. The creation of mutations is called :

A. Mutagenesis

B. Evolution

C. Saltatory change

D. Radiation

Answer: A



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62. Failure of cytokinesis after telophase stage of cell division results in an increase in a whole set of chromosomes in an organism.

The phenomenon is called as

A. Aneuploidy

B. Polyploidy

C. Teraploidy

D. All of these

Answer: B



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63. When a mutation is limited to the substitution of one nucleotide pair of DNA, it is called as

A. Translocation

B. Point mutation

C. Sugar phosphate deletion

D. Base inversion

Answer: B



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64. Which of the following chromosomal alterations does not alter genic balance but

may affect phenotype because of differences in gene expression?

A. Deletion

B. Inversion

C. Duplication

D. Both (b) and (c)

Answer: B



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65. Mutations in plants cannot be induced by

A. Radiation

B. Ethyl methane sulphonate

C. Nitrous acid

D. Radiowaves

Answer: D



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66. Mutations used in agriculture are

A. Lethal and recessive

B. Artificially induced and recessive

C. Lethal and dominant

D. None of the above

Answer: B



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67. Muller was awarded Nobel prize in 1946 for his work on

- A. X-rays mutation in Drosophila
- B. Chemistry of nucleic acids
- C. Mechanism of protiensynthesis
- D. Human cancer

Answer: A



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68. Distance between the genes and percentage of recombination shows

- A. A direct relationship
- B. An inverse relationship
- C. A parallel relationship
- D. No relationship

Answer: A



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69. ZZ/ZW type of sex determination is seen in

A. Platypus

B. Snails

C. Cockroach

D. Peacock

Answer: D



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70. Which of the following will not result in variations among siblings ?

A. Independent assortment of genes

B. Crossing over

C. Linkage

D. Mutations

Answer: C



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71. In a certain taxon of insects some have 17 chromosomes and the others have 18 chromosomes. The 17 and 18 chromosome-bearing organisms are

- A. males and females, respectively
- B. Females and males, respectively
- C. All males
- D. All females

Answer: A



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72. The chemical and physical factors that induce mutations are called as

A. Variants

B. mutagens

C. Recombinant

D. Alternatives

Answer: B



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73. Conditions of a karyotype

$2n \pm 1$ and $2n \pm 2$ are called

- A. Aneuploidy
- B. Polyploidy
- C. Allopolyploidy
- D. Monosomy

Answer: A



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74. Choose the incorrect statement regarding deletions.

- A. Can be detected during the pairing of homologous chromosomes
- B. Their genetic effect can be seen in the form of pseud dominance
- C. In plants, they can be easily transmitted to offsprings
- D. None of the above

Answer: C



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75. Chromosomal aberrations are commonly observed in

- A. brain cells
- B. Neurons
- C. Cancer cells
- D. None of these

Answer: C



76. The alteration in chromosomes results due to

A. Loss of a segment of DNA

B. Gain of a segment of DNA

C. Both (a) and (b)

D. None of the above

Answer: C



77. All genes located on the same chromosome:-

A. Form different groups depending up on their relative distance

B. Form one linkage groups

C. Will not from any linkage groups

D. Form interactive groups that affect the phenotype

Answer: B



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78. The reason why some mutations which are harmful do not get eliminated from gene pool is that :

A. They are recessive and carried by heterozygous individuals

B. They are dominant and show up more frequently

C. Genetic drift occur because of a small population

D. They have future survival value

Answer: A



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79. When two genetic loci produce identical phenotypes in cis as well as in trans position ,they are considered to be

A. Pseudoalleles

B. Parts of the same gene

C. Multiple alleles

D. Different genes

Answer: B



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80. The first known allotetraploid reported by Russian geneticist Karpechenko (1928) was

- A. Secale cereale
- B. Cynodon dactylon
- C. Raphanobrassica
- D. Brassica oleracea

Answer: C



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81. Which of the following would be likely to suffer the greatest genetic damage from radiation exposure?

A. Haploid

B. Diploid

C. Polyploidy

D. All of these

Answer: A



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82. In a cross between genotype Ab and $++$, 1700 out of 2000 individuals were of parental type. The distance between A and B is

A. 35 map units

B. 45 map units

C. 30 map units

D. 15 map units

Answer: D



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83. If the mutation rate of a certain gene is directly proportional to the radiation dosage and the mutation rate of *Drosophila* is

observed to increase from 3% at 1000 R to 6% at 2000 R. What percentage of mutations would be expected at 3500 R?

A. 0.03

B. 0.1005

C. 0.06

D. 0.09

Answer: B



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84. In multi-factorial inheritance

- A. Many characters are influenced by a simple gene
- B. Many genes influence a simple character
- C. More than one allele of a gene is necessary to produce the effect
- D. One gene incompletely dominates the effect of its allele

Answer: B



85. Sutton and Boveri argued that the pairing and separation of a pair of chromosomes would lead to

- A. The segregation of a pair of a pair of factors they carried
- B. The segregation of the characters
- C. Recombination of the factors they carried

D. Both (b) and (c)

Answer: A



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86. Which of the following statements is correct about *Drosophila melanogaster*?

A. They could be grown on simple synthetic medium

- B. Their single mating could produce a large number of progeny flies
- C. The male and female flies are easily distinguishable
- D. All of the above

Answer: D



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87. Morgan carried out several crosses in *Drosophila* to study genes that were sex-linked. Those crosses were

- A. Monohybrid
- B. Dihybrid
- C. Trihybrid
- D. None of these

Answer: B



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88. Morgan observed that the two genes

A. Did not segregate independently to each other

B. Segregated independently to each other

C. F₂ ratio was same as 9:3:3:1

D. Both (b) and (c)

Answer: A



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89. Morgan coined the term linkage to describe

A. Generation of non-parental gene combinations

B. Association of genes on a chromosome

C. Physical status of gene combinations

D. Generation of parental gene combinations

Answer: B



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90. Recombination describes

A. Generation of parental gene combinations

B. Generation of non-parental gene combinations

C. Generation of both parental and non-parental gene combinations

D. None of the above

Answer: B



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91. Alfred sturtevant to measure the distance between genes and mapped their position on the chromosome used the frequency of

A. recombination between gene pairs on the two different chromosomes

B. Recombination between gene pairs on the same chromosome

C. Gene pairing on two different chromosomes

D. Gene pairing on the same chromosome

Answer: B



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92. The genetic maps are used as a starting point in the sequencing of whole genomes as in the case of

A. Human project

B. Human gene sequencing project

C. Human genome sequencing project

D. All of the above

Answer: C



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93. X-chromosome is designated as sex chromosome due to its involvement in

A. Determination of sex

B. Producing female child

C. Both (a) and (b)

D. None of these

Answer: A



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94. IN both Xoand XY type of sex determining mechanisms, males produce two different types of gametes

- A. Either with or without X-chromosome
- B. Some gametes with X-chromosome and some with Y-chromosome
- C. Both (a) and (b)
- D. None of the above

Answer: C



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95. Haploids are used for research because

- A. They contain only one chromosome
- B. They contain two sets of chromosomes
- C. They contain three sets of chromosomes
- D. They contain only one set of chromosomes

Answer: D



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96. Haploids are able to express both recessive and dominant alleles /mutations because there are :

A. Many alleles for each gene

B. Two alleles for each gene

C. Only one allele for each gene in the individual

D. Only one allele in a gene

Answer: C





97. Certain chemicals when tested individually are not mutagenic, but when applied together, these increase the frequency of mutation. Such chemicals are called as

- A. Comutagens
- B. Radio potentials
- C. Mutagen
- D. Both (a) and (b)

Answer: D



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98. Cytosterility in the pollen of maize is due to

- A. Extrachromosomal inheritance
- B. Complementary genes
- C. Nuclear inheritance
- D. Hypostasis

Answer: A



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99. Polyploidy leads to rapid formation of new species because of

A. isolation

B. Development of multiple sets of chromosomes

C. Mutation

D. genetic recombination

Answer: B



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100. which of the following chromosomal mutation are most likely to take place when homologous chromosomes are undergoing synapsis?

A. Inversion and translocation

B. Deletion and duplication

C. Inversion and deletion

D. Translocation and duplication

Answer: B



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101. Inheritance of characters not located in the gene, but the young one resembling only the female part is due to

- A. Cytoplasmic inheritance
- B. Chromosomal inheritance
- C. Plastid inheritance
- D. Epigenesis

Answer: A



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102. Who stated that Y-chromosome is heterochromatic and plays no significant role in sex determination?

A. CB Bridges

B. Peterson

C. Mendel

D. Morgan

Answer: B



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103. When a cluster of genes shows linkage behaviour they

A. Do not show independent assortment

B. Induce cell division

C. do not show a chromosome map

D. Show recombination during meiosis

Answer: A



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104. In recent years, DNA sequence (nucleotide sequence) of mt-DNA and Y chromosomes

were considered for the study of human evolution, because

- A. Their structure is known in greater detail
- B. They can be studied from the samples of fossil remains
- C. They are small and therefore, easy to study
- D. They are uniparental in origin and do not take part in recombination

Answer: D



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105. A and B genes are linked. What shall be the genotype of progeny in a cross between AB/ab and ab/ab ?

- A. Aabb and aabb
- B. AaBb and aabb
- C. AABB and aabb
- D. None of the above

Answer: C



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106. Extranuclear inheritance occurs in

A. Killer Paramecium

B. killer Amoeba

C. Euglena

D. Hydra

Answer: A



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107. The frequency of an allele in an isolated population may change due to

- A. Genetic drift
- B. Gene flow
- C. Mutation
- D. natural selection

Answer: A



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108. Male XX and female XY sometime occur due to :

A. Deletion

B. Transfer of segments in X and Y -
chromosomes

C. Aneuploidy

D. Hormonal imbalance

Answer: B



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109. Relative Biological Effectiveness (RBE)

usually refers to damage caused by

A. Low temperature

B. High temperature

C. Radiation

D. Pollution

Answer: C



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110. How many base pairs would have to be deleted in a mutational event to eliminate a single amino acid from a protein and not change the rest of the protein?

A. 1

B. 3

C. 2

D. 4

Answer: B



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111. Number of linkage in a polynucleotide would be

- A. Same as number of nucleotides
- B. Twice as number of nucleotides
- C. One less than the number of nucleotides
- D. One

Answer: D



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112. Col' plasmid in bacteria produce

- A. Bactericidal and bacteristatic chemicals
- B. Fertility factor
- C. Resistance to antibiotics
- D. None of the above

Answer: A



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113. In bugs, cockroach and roundworms, the male possess

- A. One chromosome less than the female
- B. Two similar sex-chromosomes
- C. one chromosome different from rest
- D. a Y-chromosome

Answer: A



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114. Exchange of chromosome segments between maternal and paternal chromatids during meiosis is called.

Or

In meiosis the daughter cells are not similar to that of parent because of

- A. Linkage
- B. exchange
- C. crossing over
- D. replacement

Answer: C



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115. In the cell of an organism heterozygous for two pairs of genes represented by Aa, Bb, undergoes meiosis, then the possible genotypic combination of gametes will be :-

A. AB: Ab:aB:ab

B. AB:AB:ab:ab

C. Ab:Ab:ab:Ab

D. None of these

Answer: A



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116. Cris cross inheritance in *Drosophila* led to the discovery of

A. Law of independent assortment

B. Extrachromosomal inheritance

C. Lethal gene

D. Sex-linked inheritance

Answer: D



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117. *Drosophila* has four pairs of chromosomes.

How many linkage groups does female

Drosophila has (male *Drosophila* has 5 linkage

groups)

A. 4

B. 8

C. 3

D. 5

Answer: A



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118. What would be segregation pattern of ascospores in Neurospora asci in case of 'crossing over' of the type given below?

A. ab,ab, ab, AB,AB,AB,AB

B. Ab,Ab,Ab,Ab,aB,aB,aB,aB

C. Ab,Ab,aB,aB,aB,aB,aB,Ab,Ab

D. aB,aB,ab,ab,AB,AB,Ab,Ab

Answer: B



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119. Exchange of segments between nonhomologous chromosomes is

A. Crossing over

B. Inversion

C. Duplication

D. Translocation and duplication

Answer: D



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120. The maximum number of chromosomes in a flowering plant is $2n=265$ in *Poa litorosa*. The minimum number (*Drosophila*) is

A. $2n=4$

B. $2n=14$

C. $2n-2$

D. $2n=16$

Answer: A



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121. The chromosomal theory of heredity means that

- A. Chromosomes are composed of genes
- B. Chromosomes are made up of DNA and protein
- C. Genes are located on the chromosome
- D. All of the above

Answer: C



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122. Male honey bee has 16 chromosomes.
What is the number chromosomes in worker
and queen honey bee?

A. $n=32$

B. $2n=32$

C. $n=16$

D. $2n=16$

Answer: B



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123. In haploids, both recessive and dominant limitations express themselves because

- A. There is one allele for each trait
- B. There are two alleles for each character
- C. There are two genes for each character
- D. There are many alleles for each trait

Answer: A



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124. When can chromosomes be counted best?

- A. Metaphase
- B. Early prophase
- C. Mid prophase
- D. Late prophase

Answer: A



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125. When an additional copy of a chromosome is included in an individual, the condition is called

- A. Monosomy
- B. Trisomy
- C. Triploid
- D. None of these

Answer: B



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126. A ring of three chromosomes and six bivalents are observed in pea plant. What type of cytological abnormality is present in this plant?

- A. Triploid
- B. Primary trisomic
- C. Secondary trisomic
- D. Inversion homozygote

Answer: B



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127. Errors during DNA replication , repair or recombination can lead to base -pair substitutions ,Such chnages are called :

- A. Mutagens
- B. Saltatory changes
- C. spontaneous mutations
- D. Conditional mutations

Answer: C



128. If a mutation occurs in a gamete it would influence :

- A. Only a single individual
- B. Sterility in the progeny
- C. All successive generation of the parents
- D. Only the particular sex of the progeny,
whose gamete had undergone mutation

Answer: C



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129. If the DNA condons are ATG ATG ATG and a cytosine base is inserted at the beginning , which of the following will result

A. CA TGA TGA TG

B. C ATG ATG ATG

C. CAT GAT GAT G

D. A non -sense mutation

Answer: C



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130. A segment of the DNA has a base sequence AAG GAG GAC CAA CCA, which of the following sequences represents a frameshift mutation?

A. AGG AGG ACC ACC A

B. AAG GCG GAC CCA AC

C. ACG GAC GAC CAG CCA

D. AAG GAG GAC CAA CCA

Answer: A



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131. The DNA sequence of lac gene shows a mutation where the middle base of a triplet code has been substituted. However, the gene, does not show any mutation and expresses normal. This may be due to

A. Suppressor mutation

B. Silent mutation

C. Wobbling of tRNA

D. Degeneracy of codon

Answer: B



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132. Mutations are mainly responsible for controlling

A. Maintaining genetic continuity

B. Increasing population rate

C. controlling variation in organisms

D. Controlling extinction of organisms

Answer: C



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133. Recessive mutations are expressed in:

A. homozygous condition

B. heterozygous condition

C. has to express always since it is a mutation

D. Neither in homozygous nor in a heterozygous condition

Answer: A



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134. Which of the following shows silent mutations if mRNA strand has AUG UAU CCA UAU CCA UAC codons?

A. AUG UAU GCC AUA UCC AUA

B. AUG UAU UGA UAU CCA UAG

C. AU G UAU CCU UAU CCA UAC

D. AUG UAU UCA UAC CCA UAG

Answer: C



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135. The trisomic condition $(2n+1)$ found in mongoloid infants would arise most easily from

A. Translocation

B. Inversion

C. Triploidy

D. Non-disjunction

Answer: D



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136. Which of the following mutational events is most difficult to detect?

A. Auxotrophic mutations

B. Lethal mutatiions

C. Dominant mutations

D. Recessive non-lethal mutations

Answer: D



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137. A mutaion affectig many phenotypes is known as

A. Polygenic mutation

B. multiple alleles

C. Pleiotropic mutation

D. polyploidy

Answer: C



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138. X- Rays cause mutation by

A. Changing the chromosome morphology

B. rupturing the nuclear envelope

C. Breaking the spindle fibres

D. inducing the karyokinesis

Answer: A



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139. A micromutation is

A. Addition of chromosome

B. Deletion of chromosomes

C. Change in gene

D. Polyploidy

Answer: C



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140. Inheritable mutations can be studied by

A. generating a pedigree of a family

B. Pureline breeding

C. Punnett square

D. Using chemical mutagens

Answer: B



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141. A scientist found that a particular gene was mutated but the polypeptide coded by this gene had not changed. The mutation probably involved, which of the following?

A. Deletion of one nucleotide

B. Addition of a nucleotide

C. Substitution of a nucleotide

D. Addition of three nucleotides, which
form a codon

Answer: C



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142. In the context of evolution, what is the most important source of new mutations?

A. Exposure to X-ray

B. Exposure to chemicals

C. The mispairing of chromosomes during
meiosis

D. Errors during DNA replicatin

Answer: D



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143. Dominant mutations are easier to detect than recessive mutations because they

- A. Are always lethal and so their appearance is unmistakable
- B. Are expressed in both homozygotes and heterozygotes
- C. Occur at a higher frequency
- D. are always neutral in their effect

Answer: B

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144. In sickle cell anaemia, the substitution of amino acid in the globin protein results due to

- A. Single base substitution
- B. polymerisation
- C. Aberration in chromosome number
- D. Aberration in the number of amino acids

Answer: A

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145. Gynandromorphism in certain flies is the result of :

A. Non- disjunction of X-chromosome

B. Repeated and sudden changes in both X and Y-chromosomes

C. Misdivision of chromosomes whereby one of the X-chromosome gets lost

D. Failure of X and Y-chromosome to separate during gamete formation at

the first zygotic division

Answer: A



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146. Individuals homozygous for *cd* genes were crossed with wild type $++$. The F1 dihybrid, thus produced was test crossed. It produced progeny in the following ratio: $+c$ 900, $+d$ 115, cd 880, + 105. What is the distance between *c* and *d* genes?

A. 47 units

B. 88 units

C. 11 units

D. 5.75 units

Answer: C



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147. If two genes 'a' and 'b' are linked and show 20% recombination, the proportion of gametes produced in F1 by a dihybrid ++/ab derived

from a cross between ++/++ and ab/ab would be

A. + + 20 : ab20 : + a20 : + b20

B. + + 80 : ab20

C. + + 50 : ab50

D. + + 40 : ab4 = : + a10 : + b10

Answer: D



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148. In maize, coloured endosperm (C) is dominant over colourless (c) and full endosperm (S) is dominant over shrunken (s). When a dihybrid of F1 - generation was test crossed, it produced four phenotypes in the following per centage. Coloured full 48% , coloured shrunken 5% colourless full 7% , colourless shrunken 48%. From this data, what would be the distance between the two non-allelic genes?

A. 48 units

B. 12 units

C. 7 units

D. 5 units

Answer: B



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149. The test cross of a F1 individual with genotype $(++/ab)$ produced the following offsprings $++/ab$ 10, ab/ab 10, $+a/ab$ 40 + b/ab

40, Based on this data predict the configuration of F1 heterozygous.

A. Trans-configuration

B. cis-configuration

C. Both (a) and (b)

D. None of these

Answer: A



View Text Solution

150. Choose the incorrect match

A. Translocation _ Change in gene sequence

B. Inversion __ Non-restitutive union

C. Reverse tandem _ Restitutive union duplication

D. All of the above

Answer: C



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151. Which one of the following statements is correct as applied to the occurrence of mutations.

A. mutations are encountered in all forms of life including virus and bacteria

B. Mutations occur in all forms of life except in such viruses, which have RNA as their genetic material

C. Mutations take place only in such forms,
which are under selection pressure

D. Mutations occur only when the
organisms are subjected to mutagenic
agents

Answer: A



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152. A segment of DNA has the triplet base sequence AAC, GAC, AGC, CGC ACA and AAA. Due to mutation, the first base only got deleted. Then the likely effect of this on the coding of DNA segment is that

A. There will be complete change in the types and sequence of amino acids

B. Polypeptide will have one amino acid less

C. There will be no change in polypeptide chain formed

D. The first amino acid will be different

Answer: D



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153. Which statement about genetic mutations is false?

A. Only mutations that occur in the cells and produce sperm and eggs can be transmitted to the next generation

B. Mutations occur during the process of DNA replication

C. Dominant lethal mutations can be passed on to the next generation by heterozygous individuals

D. Mutations that increase an individual's fitness (reproductive success) are

favoured by natural selection

Answer: C



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154. Which of the following mutations is likely to cause the greatest impact on the expression of a gene?

A. Insertion of a base pair in the middle of the coding sequence

B. Deletion of a base pair in the middle of the coding sequence

C. Changing a base pair in the middle of the coding Sequence

D. Deletion of a base pair in the second codon of the coding sequence

Answer: D



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155. Aneuploidy is a term used where

A. zygotic chromosome number is multiple of 3 of gametic number

B. Zygote chromosome number is multiple of 2 of gametic number

C. Zygote chromosome number is multiple of 4 of gametic number

D. Zygote has abnormal number of chromosomes

Answer: D



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156. Which of the following changes to a DNA molecule is least likely to result in a deleterious mutation?

A. Insertion of a transposable element in a coding region

B. Deletion of a base pair in a coding region

C. Change of a base pair in the first codon
of a coding region

D. Change of the third base pair of a codon

Answer: B



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157. The reason why some mutations which are harmful do not get eliminated from gene pool is that :

- A. They are dominant and show up more frequently
- B. They have future survival value
- C. They are recessive and carried by heterozygous individuals
- D. genetic drift occurs because of a small population

Answer: C



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158. Application of colchicine to a vegetative bud of a homozygous tall diploid tomato plant (DD) caused development of a tetraploid branch. What is the genotype of the somatic cells of this branch?

A. DDD

B. DDDD

C. DDdd

D. DdDd

Answer: B



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159. Microorganisms have been very useful in elucidating different effects of the mutations because

- A. They have short lifespan and many generations may be studied within a limited period
- B. They are haploid and therefore, express all the mutations induced in them

C. they can be easily cultured under controlled condition on simple and defined media

D. All of the above

Answer: D



View Text Solution

160. Which of the following organisms is known as an allopolyploidy?

A. A polyploid formed by the union of two distinct chromosome sets with subsequent doubling of chromosome number

B. A polyploid containing genetically different chromosome sets derived from two or more species

C. A polyploid, where the chromosome number is not an exact multiple of its haploid number

D. A polyploid having identical sets of genome

Answer: A



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161. One of the reasons why haploids are considered more suitable than diploids for the study of mutation is that the haploids

A. Have shorter generation time

B. Have small number of chromosomes

C. Allow expression of recessive mutations
immediately (or in first generation)

D. Can be obtained in large number to give
correct estimate of mutation theory

Answer: C



View Text Solution

162. Mutation is a

- A. Change, which affects the parents only but never inherited
- B. Change, which affect the offspring of F₂-generation only
- C. Factor responsible for plant growth
- D. Change that is inherited

Answer: D



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163. Mutational events, which result in the deletion or addition of nucleotide bases in DNA, thereby causing gross changes in the amino acid sequences of proteins are termed as

A. Point mutations

B. Forward and backward mutations

C. Transversions

D. Frameshift mutations

Answer: D



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164. How many sets are represented in the species with 156 chromosomes?

A. 12

B. 78

C. 39

D. 19

Answer: A



165. Which of the following represents an amphidiploid (or allopolyploid) condition?

A. A polyploid containing genetically different chromosome sets derived from two or more species

B. A polyploid species, in which the genomes have been derived from the same original species

C. A plant derived by doubling the chromosomes of F1 hybrid of two species

D. A plant having a chromosome number, which is not an exact multiple of the haploid number

Answer: C



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166. Different species of rhododendron have somatic chromosome numbers of 26, 39, 52, 78, 104 and 156. By what means does evolution appear to be taking place in this genus?

- A. Aneuploidy
- B. Hyperploidy
- C. Euploidy
- D. Autoalloploidy

Answer: C



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167. *Drosophila* flies with XXY genotype are females, but human beings with such genotype are abnormal males. It shows that

A. Y-chromosome is essential for sex determination in *Drosophila*

B. Y-chromosome is female determining in *Drosophila*

C. Y-chromosome is male determining in human beings

D. Y- chromosome has no role in sex determination either in *Drosophila* or in human beings

Answer: C



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168. According to Morgan, when the two genes in a dihybrid cross were situated on the same chromosome

A. The proportion of parent gene combinations were much higher than the non-parental type

B. The proportion of parent gave combination were lower than the non-parental type

C. the proportion of parent and non-parental combinations were equal

D. Either (b) or (c)

Answer: A



[View Text Solution](#)

169. Which of the following genetic events represents a case of incomplete linkage?

A. Inheritance between gene, so that one gene prevents expression of other genes

B. A condition, in which the phenotype effect of a gene's alleles are simultaneously expressed in the heterozygote

C. Occasional separation of two genes on the same chromosome by a recombinant event

D. Expression of heterozygous phenotype, which is distinct form and often intermediate to that of either parent

Answer: D



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170. In tomato, three pairs of genes are located on a chromosome of these each two are linked. There is 8% recombination between the genes for tallness (T) and smooth surface(S) . There is 20% recombination between tallness and oval-shape fruit and smooth fruit surface. The correct sequence of the genes is

A. S-O-T

B. S-T-O

C. T-S-O

D. O-T-S

Answer: C



View Text Solution

171. When the dominant alleles or wild type say AB are present on one chromosome and its alternative recessive alleles a b are located on the other homologous chromosome AB/ab, then the linkage is said to be in

A. Repulsion phase

B. Coupling phase

C. Neutral phase

D. Dominant phase

Answer: B



View Text Solution

172. Suppose that a female undergoes sex reversal to become a functional male and is then mated to a normal Female. Determine the expected F1 sex ratios from such matings

in species with XY method of sex determination

A. 2 female:1 male

B. 1 female: 2 male

C. All female

D. All male

Answer: C



View Text Solution

173. In a cross in *Drosophila*, the heterozygous animal with grey body (b^+) and long wing (vg^+) with black body and vestigial wings, the progeny has the animals in the following ratio -- grey vestigial 24: grey long 126: black long 26: black vestigial 124. What is the frequency of recombinants in the population?

A. 14.5

B. 17.5

C. 16.7

D. 15.8

Answer: C



View Text Solution

174. The loci of genes A and B are on different chromosomes. A dihybrid autotetraploid plant of genotype AA aa BB bb is self-pollinated. Assume that only diploid gametes are formed and that the loci A and B are very close to their respective centromere (chromosome

segregation) Find the phenotypic expectations of the progeny.

A. 1225 AB:35Ab:35aB: lab

B. 1130 AB : 24Ab: 24aB :lab

C. 936 Ab: 14Ab: 14aB: lab

D. 890 AB: 13Ab:13aB: lab

Answer: A



View Text Solution

175. In *Drosophila*, red-eyed colour is dominant to white and is sex-linked, what results would you expect from a cross between a red-eyed male and a white-eyed female?

A. All females red-eyed and males white-eyed

B. All males and female red-eyed

C. All females white-eyed and males red-eyed

D. All offsprings white-eyed

Answer: A



View Text Solution

176. In a linear chromosome map, distances between 4 loci is as follows, a-b 10%, a-d 3%, b-c 4% and a-c 6%. The cross over frequency between c and d is

A. 4 to 12%

B. 3 or 9%

C. 0.09

D. 0.03

Answer: B



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177. In rabbit, two recessive genes produce a solid body colour and long hair in contrast to dominant spotted body colour and short hair. The result of a cross between heterozygous

spotted short haired rabbit to solid long haired rabbit gives spotted, short haired 48, spotted long haired 5, solid short haired 7, solid long haired 40, total 100. In terms of cross over units, how far are there two genes on the chromosome?

A. 40 map units

B. 7 units

C. 12 map units

D. 45 map units

Answer: C



[View Text Solution](#)

178. According to Chromosome theory of linkage of morgan and castle(1912)

A. Strength of linkage between two successive genes is inversely proportional to distance between two genes

B. Genes lie in a linear order in the chromosomes

C. linked genes are arranged in cis or trans manner

D. All of the above

Answer: D



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179. *Drosophila* is used in genetic studies because

A. Its chromosome complement is simple

B. A single mating produces over 100
offsprings

C. life cycle time is small (10-20 days)

D. All of the above

Answer: D



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180. If gene frequency between genes a and b 15%, c and d 19%. What will be the sequence of these genes in a chromosome?

A. a,b,c,d

B. a,c,b,d

C. d,b,a,c

D. a,d,b,c

Answer: B



View Text Solution

181. Eye colour in fruitfly is a sex-linked trait and the cross between white-eyed female and red-eyed male gives red-eyed females and

white-eyed males. Rarely, this cross may give all white-eyed Females and red-eyed males, this was found to be due to

A. loss of sex chromosome

B. Non-disjunction of two Z-chromosomes
in female fly

C. Mutation in femle fly

D. Mutation in male fly

Answer: B



View Text Solution

182. *Mirabilis*, normal leaves (a) and variegated leaves (b) colour occur in different plants. If (b) male is crossed with (a) female, normal leaves occur in the hybrid. But (a) male is crossed with (b) female variegated leaves occur. It is an instance of

A. cytoplasmic inheritance

B. disjunction

C. Inversion and deletion

D. Epistasis

Answer: A



View Text Solution

183. Offsprings resemble their parents but are not exactly like them. This is so, because of

A. Variation produced by crossing over at the time of gamete formation

B. Variation produced by chance and distribution of chromosomes to the two

poles of meiosis-I

C. Both (a) and (b)

D. Mingling of maternal and paternal characters

Answer: C



View Text Solution

184. If a plant were trisomic for one of its chromosomes and these chromosomes carried

the alleles A, A1 and A2, respectively, how many types of gamets can be produced?

A. 3

B. 4

C. 6

D. 12

Answer: C



View Text Solution

185. Geneticist plot the relative locations of genes on chromosomes by which of these methods

A. Exposing animals to radiations

B. Calculating the number of genes

C. Using powerful microscope

D. Determining the frequency of cross
overs(crossing over)

Answer: D





186. Bateson used the terms coupling and repulsion, while discovering linkage in *Lathyrus*. If A, B are dominant alleles and a, b are recessive alleles of two genes, parental crosses in coupling and repulsion phases can be written as follows

A. Coupling- $AABB, aabb,$

Repulsion-

$Aabb, aaBB$

B. coupling-AABB,aabb.Repulsion-

AABB,Aabb

C. coupling-aaBB,aabb,Repulsion-Aabb,aabb

D. Coupling-Aabb,aaBB, Repulsion-

AbBa,aabb

Answer: A



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187. When an albino female plant of maize is crossed with normal green male plant, all plants in the progeny are albino because

A. Albinism is dominant over green characters

B. Plastids are inherited through maternal plants

C. Green plastids of male parent become maternal

D. Crossing results in structural change in
green plants

Answer: B



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188. Cytoplasmic male sterility in maize is the phenotypic manifestation of the interactions between

A. Cytoplasmic factors and male sterility
genes

B. Cytoplasmic factors and male fertility
nuclear genes

C. Chloroplast genes and nuclear genes

D. Mitochondrial and chloroplast genes

Answer: B



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189. Complete linkage in Drosophila males

A. Results in the absence of cross over

B. results in total absence of genetic recombination under normal control

C. Means that sperms produced are only of two types

D. results in all the genes in a particular linkage group mapping at the same point

Answer: A



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190. Polyploidy is induced in tomatoes by

- A. High temperature
- B. decapitation
- C. Indole acetic acid
- D. Acenaphthene

Answer: B



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191. What form of inheritance does a trait in human have, which is found in the siblings of parents, where the female has the trait, but is never found in siblings of parents, where only the male has the trait?

- A. X-linked inheritance
- B. Y-linked inheritance
- C. Autosomal inheritance

D. Maternal (extranuclear) inheritance

Answer: D



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192. Linkage and cytological maps for the same chromosome

A. Are both based on mutant phenotypes

and recombination data

B. May have different sequences of genes

C. Have both the same sequences of genes
and intergenic distances

D. Have the some sequences of genes but
different intergenic distances

Answer: D



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193. Genes A and B are linked 12 map units
aprt. A heterozygous individual, whose parents

were Aabb and aaBB, would be expected to produce gametes in the following frequencies

A. 44% AB, 6%Ab,6%aB,44%ab

B. 6%AB,44,%Ab,44%aB,6%ab

C. 12%AB, 38%Ab,38%,aB,12%ab

D. 6%AB,6%Ab,44%aB,44% ab

Answer: B



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194. A cross of a wild type red-eyed female *Drosophila* with a violet-eyed male produces all red-eyed offsprings. If the gene is sex-linked, what should the reciprocal cross (violet-eyed female x red-eyed male) produce (Assume that the red allele is dominant to the violet allele)?

A. all violet-eyed flies

B. 3 red-flies to 1 violet-eyed

C. A 1:1 ratio of red and violet-eyes in both males and females

D. Red-eyed females and violet-eyed males

Answer: D

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195. Crossing over occurs at four-strand stage.

This was proved by the observation that

A. usually two gametes resulting from meiosis are recombinants

B. All the four gametes resulting from meiosis are recombinants

C. Chiasmata are seen only at four-strand stage

D. Chiasmata are seen only at two-strand stage

Answer: A



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196. Based on the relative proportion of parental and recombinant phenotypes in the test cross progeny involving two recessive genes *r* (round) and *Y* (yellow) controlling the seed shape and seed colour respectively, the observed per cent recombinant is 10. The distance between *r* and *y* is

- A. 10 map unit
- B. 20 map units
- C. 30 map units

D. 40 map units

Answer: A



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197. In maize, coloured endosperm (C) is dominant over colourless (c) and swollen or full endosperm R is dominant over shrunken r. When the dihybrid of F₁- generation test crossed, it produced four phenotypes in the following per centage.

Coloured full -49%

Coloured shrunken- 4%

Colourless full - 6%

Colourless shrunken - 49%

From this data, what would be the distance between the two non-allelic genes?

A. 49 units

B. 4units

C. 6units

D. 10units

Answer: A



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198. Individual homozygous for *cd* genes were crossed with wild type(++). The F1 hybrids thus produced was test crossed and progenies produced in following ratio ++-450, *cd*-440, +*d* -58,+*c* -54

Calculate the distance between *c* and *d* genes.

A. 5.75 units

B. 11.2 units

C. 45 units

D. 44units

Answer: B



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**Chapter Exercise Medical Entrances Special
Format Questions Statement Based**

1. Consider the following conditions.

I. Monoploidy

II. Hypoploidy

III. Polyploidy

IV. Hyperploidy

Which among these are euploidy?

A. I and II

B. II and III

C. only IV

D. I and III

Answer: D



View Text Solution

2. Consider among following statements regarding multiple alleles.

I. Influence the different characters. II. Have arisen as a result of mutation of the normal gene. III. Exhibit the phenomenon of crossing over in itself. IV. Occupy the same locus in the homologous chromosomes.

Choose the correct option.

A. I and II

B. II and III

C. II and IV

D. I and IV

Answer: C



View Text Solution

3. Which of these statement represent reason for silent mutations?

I. more than one codon specify same amino acid.

II. Simultaneous presence of suppressor mutations. III. The change in codon. IV. Presence

of activator genes

Choose the correct option.

A. I,II and III

B. II and IV

C. III and IV

D. I and I II

Answer: A



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4. Which of the following statements are correct?

I. Point mutations involve deletion of a part of chromosome. II. When a purine base is replaced by another purine and pyrimidine by another pyrimidine, it is transition.

III. In frameshift mutations, one nitrogenous base is substituted by other. IV. When a purine is replaced by a pyrimidine and vice-versa, it is called transversion.

A. I and II

B. II and IV

C. III and IV

D. Only IV

Answer: B



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5. The variation in chromosome structure occurs due to

I. Duplication

II. Euploidy

III. Inversion

IV. Aneuploidy

A. I and III

B. II and IV

C. III and IV

D. Only IV

Answer: A



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6. Which of the following are correct?

I. An inversion is produced, when there are two breaks in a chromosome and the intercalary segment reunites in reverse order.

II. Reciprocal translocations involve mutual exchange of chromosome segments between two pairs of non-homosome chromosomes.

III. In paracentric inversion, inverted segment includes centromere.

IV. Inversion occurring in both the members of homologous pair is called chromosomal inversion.

A. I and II

B. III and IV

C. II and III

D. only IV

Answer: A



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7. Which of the following statements are correct regarding crossing over?

I. It provides its results as variations, which are

new material of evolutionary changes in nature.

II. It helps in the construction of linkage maps.

III. It affords a proof for linear arrangement of genes.

IV. It helps in the cytoplasmic inheritance.

A. I,II and III

B. II and IV

C. III and IV

D. Only IV

Answer: A



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8. Which of the following mechanisms can explain the determination of sex?

I. Genic balance mechanism

II. Haplodiploidy mechanism

III. Cytoplasmic inheritance

IV . Sex-linked inheritance

A. I and II

B. III and IV

C. Only IV

D. I,II and III

Answer: A



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9. Consider the following statements regarding linkage.

I. The linked genes are located on the same chromosome.

II. Crossing over between linked genes is rare

III. Linked genes are always inherited together

IV. Linked genes affects the percentage of homozygosity following hybridisation

Choose the correct option.

A. I and III

B. I, II and III

C. II, III and IV

D. I, III, and IV

Answer: B



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10. Assertion: According to Bridges, the Y-chromosome is responsible only for the fertility of sex and not for sex determination in *Drosophila*.

Reason: According to Bridges in *Drosophila*, autosomes are responsible for feminine characteristics.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: C



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11. Assertion: In *Habrobracon*, only haploid males are seen.

Reason: The unfertilised eggs only develop to males in this wasp. The fertilised eggs on the other hand always develop into females.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is false

Answer: D



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12. Assertion : In *Drosophila*, one strain shows more sensitivity towards CO₂

Reason: The sensitivity is due to the presence

of a heat labile substance within the cytoplasm called sigma.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: B



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13. Assertion : If both the chromosomes of a homologous pair contain dominant gene representation that the condition is known as trans.

Reason: The condition defined above is in response with crossing over.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: C



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14. Assertion : Somatic or mitotic cross over is never reported by any scientist.

Reason: The meiotic cross over produces patches of cross over tissue between the normal cells.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: D



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15. Assertion XX-XY mechanism of sex determinatio occurs in human beings.

Reason:In human, the X-chromosome is longer than Y-chromosom.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: B



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**Chapter Exercise Medical Entrances Special
Format Questions Assertion Reason**

1. Assertion: During mutation a gene may undergo a sudden change in expression due

to the change in composition.

Reason: Some genes mutate more than one and have more than two alleles.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: B



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2. Assertion: Frameshift mutation is a gene mutation.

Reason: Gene mutation is also called point mutation.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: B



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3. Assertion: The non-allelic genes for red hair and preckls are usually inherited together.

Reason: The genes for red hair and preckles are located on the same chromosomes in close association.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: A



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4. Assertion: HJ Muller (1927) first of all demonstrated the use of physical mutagens and got Nobel Prize in 1946.

Reason: X-rays, gamma rays are commonly used for producing mutation artificially.

A. Both Assertion and reason are true and the reason is a correct explanation of the Assertion

B. both Assertion and Reason are true and the Reason is not the correct

explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the reason is true

Answer: B



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**Chapter Exercise Medical Entrances Gallery
Collection Of Questions Asked In Neet And
Various Medical Entrance Exams**

1. In a testcross involving F_1 dihybrid flies, more parental-type offspring were produced than the recombinant-type offspring. This indicates:

- A. Chromosomes failed to separate during meiosis
- B. The two genes are linked and present on the same chromosome
- C. Both of the characters are controlled by more than one gene

D. The two genes are located on two different chromosomes

Answer: B



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2. The distance between the genes on the chromosomes is measured by using

A. Pieiorophy

B. Allels frequency

C. Codominance

D. Recombination frequency

Answer: D



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3. the mechanism that causes a gene to move from one linkage group to another is called :

A. Inversion and translocation

B. Duplication

C. Translocation

D. Crossing over

Answer: C



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4. the term 'linkage' was coined by :

A. TH Morgan

B. T Boveri

C. GJMendel

D. W Sutton

Answer: A



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5. A point mutation that changes a codon specifying an amino acid into a stop condon is called a

A. Non-sence mutation

B. Deletion mutation

C. frameshift mutation

D. mis-sense mutation

Answer: A



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6. A species has $2n=16$ chromosomes. How many chromosomes will be found per cell in each of the following mutant species?

I. Monosomic

II. Autotriploid

III. Trisomic

IV. Double monosomic

V. Nullisomic

The correct sequence of chromosomes for (I to V) are

A. 15,24,17,14,14

B. 24,32,18,40,12

C. 16,22,14,21,16

D. 26,34,20,42,14

Answer: A



7. If an inheritable mutation is observed in a population

- A. Sequence annotation
- B. DNA polymorphism
- C. linkage
- D. expressed sequence tag

Answer: B



8. *Drosophila* with genotype AAA+XX is

- A. normal male
- B. Normal female
- C. Inter sex
- D. Metamale

Answer: D



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9. Which one of the following information is essential to determine the genetic map distance between two genes located on the same chromosome ?

A. Length of the particular chromosome

B. Number of genes present in the particular chromosome

C. Number of nucleotides in the particular chromosome

D. Percentage of crossing over or recombinant frequency between the two

genes

Answer: D



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10. Conditions of a karyotype

$2n \pm 1$ and $2n \pm 2$ are called

A. Aneuploidy

B. polyploidy

C. Autopolyploidy

D. Monosomy

Answer: A



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11. Genes for cytoplasmic male sterility in plants are located in

A. Nuclear-genome

B. Mitochondrial genome

C. chloroplast genome

D. Cytosol

Answer: B



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12. Which I gynandromorph type of animal?

A. *Drosophila melanogaster*

B. Beetles

C. Silkworms

D. All of these

Answer: D



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13. Choose the incorrect statement.

A. Failure of segregation of chromatids during cell division results in aneuploidy

B. Additional copy of X-chromosome in males results in Klinefelter's syndrome

C. Closely located genes in a chromosome
always assort independently resulting in
recombinants

D. According to Mendel, recessive character
never blend in heterozygous condition

Answer: C



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14. The frequency of crossing-over occurring between two genes located on the same chromosome depends on:

- A. Length of the chromosome
- B. position of the centromere
- C. activities of two genes
- D. distance between two genes

Answer: D



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15. Which of the following factor was used by Alfred Sturtevant to measure the distance between the genes and mapped their position on the chromosome

- A. Total recombination
- B. Frequency of recombination
- C. Parental gene combination
- D. Non-paretal combination

Answer: B



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16. Choose the incorrect statement.

A. In grasshoppers, besides autosomes males have only one X-chromosome, whereas females have a pair of X-chromosomes

B. In XY type of sex-determinatin, both males and females have same number of chromosomes

C. In *Drosophila*, males have one X and one Y chromosome, whereas females have a pair of X-chromosomes besides autosomes

D. In Birds, females have one Z and one W-chromosomes, whereas males have a pair of Z-chromosomes besides autosomes

Answer: C



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17. which of the following statements is not true of two genes that show 50 % recombination frequency ?

A. The genes may be on different chromosomes

B. The genes are tightly linked

C. The genes show independent assortment

D. If the genes are present on the same chromosome, they undergo more than one crossover in every meiosis

Answer: B



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18. Who is known as father of radiation genetics

A. Slatyer

B. Charles Elton

C. Taylor

D. HJ Muller

Answer: D



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19. Depending upon the distance between any two genes which is inversely proportional to the strength of linkage, cross overs will vary from

A. 50-100%

B. 0-50%

C. 75-100%

D. 100%-150%

Answer: B



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20. Which one of the following conditions correctly describes the manner of determining the sex in the given example

A. Homozygous sex chromosome XX

produce male in *Drosophila*

B. Xo type of sex determines male sex in

grasshopper

C. Homozygous sex chromosome ZZ

determine female sex in birds

D. XO condition in human as found in

Klinefelter's syndrome determines

female sex

Answer: B



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21. Mutation can be induced with :

A. IAA

B. ethylene

C. Gamma radiations

D. Infra red radiations

Answer: C



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22. The chromosomal number in the meiocytes of housefly is :

A. 8

B. 12

C. 21

D. 23

Answer: B



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23. Experimental verification of chromosomal theory of inheritance was given by

A. Grego Johann Mendel

B. Hugo de vries

C. Langdon Down

D. Henking (e) Thomas hunt morgan

Answer:



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24. XO type of sex determination is seen in

A. Man

B. Grasshopper

C. Drosophila

D. Birds

Answer: B



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25. Allelic sequence variations where more than one variant (allele) at a locus in a human population with a frequency greater than 0.01 is referred to as

A. Incomplete dominance

B. Multiple allelism

C. SNP

D. EST

Answer: C



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26. The loss of a chromosomal segment is due to :

- A. Polyploidy
- B. Deletions
- C. Duplications
- D. inversions

Answer: B



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27. Walter Sutton is famous for his contribution to

A. Genetic engineering

B. Totipotency

C. Quantitative genetics

D. Chromosomal theory of inheritance

Answer: D



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28. The chromosome constitution $2n-2$ of an organism represents :

A. Monosomic

B. nullisomic

C. haploid

D. trisomic

Answer: D



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29. Chimera is produced due to

- A. Somatic mutations
- B. reverse mutatio
- C. lethal mutations
- D. Pleiotropic mutations

Answer: A



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30. During a process of chromosomal mutation a student saw a chromosomal pair as a figure of 8. The most probable process expected for the above phenomenon is

- A. Deletion of one nucleotide
- B. duplication
- C. Inversion and deletion
- D. Translocation and duplication

Answer: D



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31. which of the following is not considered as a mutagen ?

- A. Lower temperature
- B. X-rays
- C. higher temperature
- D. UV rays

Answer: A



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32. The change in single base pair

A. May not change the phenotype

B. Quickly changed the phenotype

C. Change the natural proces

D. None of the above

Answer: A



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33. Polyploid derived from two different species is called :

A. Autopolyploid

B. Triploid

C. Allopolyploidy

D. Monoploid

Answer: C



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34. Identify the incorrect statement.

A. In male grasshoppers, 50% of the sperms have no sex chromosome

B. Usually, female birds produce two types of gametes based on sex chromosome

C. The human males have one of their sex chromosomes much shorter than other

D. The male fruit fly is heterogametic

Answer:



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35. Which of the following condition is called

A. $2n+1$

B. $2n+2$

C. $n+1$

D. $2n-1$ and $2n+1$

Answer: D



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36. Point (Gene mutation) mutation involves

A. Insertion

B. Change in single base pair

C. Duplication

D. Deletion of a base pair in the second
codon of the coding sequence

Answer: B



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37. the genes of different traits locted on different loci on the same chromosome are:

A. Alleles

B. linked

C. Mutated

D. pleomorphic

Answer: B



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38. Polyploidy means occurrency of

A. Haploid sets of chromosomes

B. Diploid sets of chromosomes

C. more than diploid sets of chromosome

D. All of the above

Answer: C



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39. In which mode of inheritance do you expect more maternal influence among the offspring

A. Autosomal

B. Cytoplasmic

C. Y-linked

D. X-linked

Answer: B



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40. Select the incorrect statement from the following

- A. Linkage is an exception to the principle of independent assortment in heredity
- B. Galactosemia is an inborn error of metabolism
- C. Small population size results in random genetic drift in a population
- D. Baldness is a sex-limited trait

Answer: D



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41. In Morgan 's experiments on linkage , the percentage of white eyed miniature winged recombinants in F_2 generation is

A. 1.3

B. 37.2

C. 62.8

D. 73.2

Answer: B



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42. Lack of independent assortment between two genes A and B in fruit fly *Drosophila* is due to

A. Repulsion phase

B. Recombination

C. Linkage

D. Crossing over

Answer: C



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43. Polyploidy can be induced the application of
of

A. auxin

B. kinetin

C. colchicine

D. Ethylene

Answer: C



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44. When chromosome breaks and the two fragments join together after rotating by 180° is called :

- A. Deletion of one nucleotide
- B. Duplicaiton
- C. inversion
- D. interstitial translocation

Answer: C



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45. Mutation is more common when it is present in

- A. Recessive condition
- B. Dominant condition
- C. Constant in population
- D. None of these

Answer: B



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46. The mutagenic agent among following is

A. Ethyl methane

B. Ethylene

C. 2,4-D

D. IAA

Answer: A



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47. Among the following which one is the mutagenic agent ?

- A. Visible light
- B. Penicillin
- C. Formalin
- D. Water vapour

Answer: A



48. Euploidy is best explained by

- A. Exact multiple of a haploid set of chromosomes
- B. One chromosome less than the haploid set of chromosomes
- C. One chromosome more than the haploid set of chromosome

D. One chromosome more than the diploid set of chromosomes

Answer: B



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49. Haploids are more suitable for mutation studies than the diploids. This is because

A. Haploids are reproductively more stable than diploids

- B. Mutagens penetrate in haploids more effectively than in diploids
- C. Haploids are more abundant in nature than diploid
- D. all mutations, whether dominant or recessive are expressed in haploids

Answer: A



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50. Genes present in the cytoplasm of eukaryotic cells, are found in

A. Mitochondria and inherited via egg cytoplasm

B. lysosomes and peroxisomes

C. Golgi bodies and smooth endoplasmic reticulum

D. plastids and inherited via male gamete

Answer: A



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51. Sex determination ratio in a organism is

given by $\frac{X}{A} = 1.5$, then organism will be :-

A. Male

B. Female

C. Super female

D. inter sex

Answer: A



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52. Gene when close together on a chromosome are known as

A. Linkage

B. Mutation

C. Translation

D. Transcription

Answer: D



Watch Video Solution

53. The chromosomal rearrangement results in

:

A. Euploidy

B. Aneuploidy

C. Duplication

D. Polyploidy

Answer: A



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54. the linkage map of X -chromosomes of fruitfly has 66 units with yellow body gene (y) at one end and bobbed hair (b) gene at the other end the recombination frequency between these two genes (y and b) should be :

A. 0.66

B. ≤ 50

C. > 50

D. 1

Answer: C



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55. The distance between the genes a,b,c and d in mapping units are $a-d=3.5$, $b-c=1$, $a-b=6$, $c-d=1.5$, $a-c=5$ Find out the sequence of arrangement of these genes:

A. ACDB

B. ABCD

C. ACBD

D. ACBD

Answer: B



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56. Sex chromosomes of a female bird are represented by

A. XO

B. XX

C. XY

D. ZZ

Answer: A



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57. When a mutation is limited to be the substitution of one nucleotide for another, it is called

- A. Translocation
- B. Point mutation
- C. Base inversion
- D. Sugar phosphate deletion

Answer: B



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58. In the hexaploid wheat, the haploid (n) and basic (x) numbers of chromosomes are

- A. $n=7$ and $x=21$
- B. $n=21$ and $x=21$
- C. $n=21$ and $x=14$
- D. $n=21$ and $x=7$

Answer: B



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59. What would happen if in a gene encoding a polypeptide of 50 amino acids, 25th codon (UAU) is mutated to UAA ?

A. A polypeptide of 49 amino acids will be formed

B. A polypeptide of 25 amino acids will be formed

C. A polypeptide of 24 amino acids will be formed

D. Two polypeptides of 24 and 25 amino acids will be formed

Answer: B



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60. Crossing over that results in genetic recombination in higher organisms occurs between

- A. Sister chromatids of bivalent
- B. Non-sister chromatids of a bivalent
- C. two daughter nuclei
- D. two different bivalents

Answer: C



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61. One of the parents of a cross has mutation in mitochondria. In that cross, that parent is

taken as a male. During segregation of F_2 -progenies that mutation is found in

- A. One -third of the progenies
- B. None of the progenies
- C. All of the progenies
- D. 50% of the progenies

Answer: C



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62. In mutational event, when adenine is replaced by guanine, it is a case of

A. Frameshift mutations

B. Transcription

C. Transition

D. Transversion

Answer: C



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63. After a mutation at a genetic locus the character of an organism changes due to the change in :

- A. Protein structure
- B. DNA replication
- C. Protein synthesis pattern
- D. RNA transcription pattern

Answer: B



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64. Which of the following symbols are used for representing sex chromosomes of birds ?

A. ZZ-ZW

B. XX-XY

C. XO-XX

D. ZZ-WW

Answer: C



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65. How many linkage group are there in bacteria E. coli :-

A. 4

B. 2

C. 1

D. 5

Answer: C



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66. If the ratio between X- chromosomes and compete set of autosome is 0.5. Then, the individual will be

- A. Female
- B. Super female
- C. Male
- D. Super male

Answer: C



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67. According to genic balance theory, which was given by CB Bridges, the sex of *Drosophila* is determined by

A. ratio between the number of Y-chromosomes and complete set of autosomes

B. Ratio between the number of X-chromosomes and complete set of autosomes

C. Both (a) and (b)

D. None of the above

Answer: B



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68. Genic balance theory of sex determination stated by CB Bridges is related to

A. *Drosophila melanogaster*

B. *Rumex*

C. Snapdragon

D. None of the above

Answer: A



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69. Which of the following is generally used for induced mutagenesis in crop plants

A. Alpha particles

B. X-rays

C. UV (260nm)

D. Gamma rays (from cobalt 60)

Answer: D



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70. Chromosome theory of inheritance was proposed by

A. Gregor Mendel

B. hugo de Vries

C. Bridges

D. Sutton and Boveri

Answer: D



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71. Which of the chromosomal formulation is responsible for the expression of meta-male character in *Drosophila* ?

A. $2A+3X$

B. $3A+3X$

C. $3A+3X$

D. $3A+XY$

Answer: A



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72. Which of the following discoveries resulted in a Nobel Prize

A. Recombination of linked genes

B. Genetic engineering

C. X-rays induce sex-linked recessive lethal mutations

D. Cytoplasmic inheritance

(e) all of the above

Answer:



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73. There are three genes a,b,c percentage of crossing over between a and b is 20%, b and c

is 28% and a and c is 18%. What is the sequence of genes on chromosome?

A. b,a,c

B. a,b,c

C. a,c,b

D. None of these

Answer: A



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74. In *Drosophila*, the sex is determined by

A. The ratio of pairs of X-chromosomes to the pairs of autosomes

B. Whether the egg is fertilised or develops

C. The ratio of number of X-chromosomes to the set of autosomes

D. X and Y -chromosomes

Answer: C



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75. Two genes R and Y are located very close on the chromosomal linkage map of maize plant. When RRYY and rryy genotypes are hybridized the F_2 segregation will show

- A. Higher number of the recombinant types
- B. segregation is expected in 9: 3:3:1 rate
- C. Segregation in 3:1 ratio
- D. Higher number of parental types

Answer: D



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76. Which type of gene regulate sex-determination in Spinach plant

- A. Multiple genes
- B. Heterozygous genes
- C. Single gene
- D. Homozygous genes

Answer: D



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