**Antagonist Zoologist Group**

**Effort BY Gull**

# Bio301 Mcq's

1- The mutation that changes a mutant phenotype back into the wild type. __Reverse mutation

2. Which genotype is not of the golden cast color in Labrador retriever? _____bbee

3. Most common phenotype in natural populations of the organism is called _____Wild type phenotype

4. Which statement is correct about DNA methylation? _____-DNA methylation is the addition of a methyl group ta the DNA base cytosine (C)

5. Which blood group does not carry any antigen? _____ o

6.Base analogs have similar structures with _____Standard bases of DNA

7. In case of summer squash, which statement is not correct?___Dominant W locus inhibit the color

8 ……Changes the wild type phenotype into mutant type phenotype. ____Forward mutation

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9.The tendency of two or more than two genes to stay together during inheritance is called_____Linkage

10.Suppressor mutations are useful for identifying new ..... Sites which affect a biological process

of interest _____Genetic

11. ….is & type of mutation that has effect on DNA sequence but no effect on the protein. _____Silent mutation

12. Mutations that cause loss of functions are usually _____Recessive

13. How many numbers of alleles can generate 10 genotypes? _____Genes with 4 alleles

14. …10-15 % of chromosomal deletions occur due to _____Balanced translocations

15. Which two alleles are called co-dominant one another and are expressed when present?_____Allele A and Allele B

16. Suppose that the distance between two genes on a linkage map is 7 units. The cross-over

frequency between the two genes is _____O.7%

17. Organisms that exhibit suppressor mutations is/are _____Double mutant

18. Formation of pluripotent cells from totipotent cells is called _____Cellular differentiation

19. If purines (A/G) is replaced by purines and pyrimidines (T/C) is replaced by pyrimidinesis_____Transition

20. WHICH OF THE FOLLOWING STATEMENT IS NOT CORRECT ABOUT MEIOSIS 1…._____NONE OF THE MENTIONED ABOVE.

21. THE DIAMETER OF CONDENSED SCAFFOLD ASSOCIATED CHROMATIN IS_____- 30NM

22. WHICH OF THE FOLLOWING STATEMENT IS NOT CORRECT ABOUT CONTINOUS VARIATION?... _____CONTINUOUS VARIATION HAS DISTINCT CATEGORIES.

23. A HEREDITY UNIT ON CHROMOSOMES IS CALLED …_____ GENE.

24. WHICH OF THE FOLLOWING DOES NOT REVERT TO THE EUCHROMATIN STAGE_____CONSTITUTIVE HETROCHROMATIN.

25. CHROMATIN FIBERS UNDERGO FOLDING, COILING AND SUPERCOILING DURING ---SO THAT THE CHROMOSOMES BECOME PROGRESSIVELY THICKER AND SMALLER…. _____PROPHASE

26. WHEN CHROMOSOMES STAINED THEY SHOW A DARK-STAINED REGION THAT IS

THE…_____CENTROMERE

27. SEX DETERMINATION IN INSECTS IS BASED ON._XX XO CHROMOSOMAL MODEL

28. SPINDLES MICROTUBULES ATTACH TOKINETOCHORES SPINDLE MICROTUBULES ATTACH TO THE KINETOCHORES OF CHROMOSOMES AND MOVE THE CHROMOSOMES TO THE…_____ METAPHASE PLATE.

29. THE SISTER CHROMATIDS SEPARATE DURING ANAPHASE STAGE

OF_____ MEIOSIS 2 AND MITOSIS.

30. IN THE PARENTAL GENERATION , WHEN MENDEL CROSSED A TRUE BREEDING PEA STRAIN THAT PRODUCED SMOOTH SEEDS__ ALL F1 PROGENY SEEDS WESE SMOOTH

31. IS AN EXAMPLE OF INHERITED VARIATION…_____FINGER PRINT.

32. MITOTIC APPARATUS HELPS IN ….____ CHROMOSOMAL MOVEMENT.

33. HOW MANY MOST COMMON CHROMOSOMAL BANDING ARE PRESENT__--_____-… 4

34. IN DNA DOUBLE HELIX , THE TWO DNA CHAINSARE HELD TOGETHER BY_ _…. HYDROGEN BONDS.

35. XO SYSTEM OF SEX IS PRESENT IN …_____ GRASSHOPPER.

35. ----- PUSH AGAINST EACH OTHER,THAT STRETCH THE CELL INTO ANOVALSHAPE……_____ NON KINETOCHORE SPINDLE FIBERS.

36. THE DIAGRAM WHICH SHOWS THE ARRANGEMENT OF METAPHASIC CHROMOSOMES

ACCORDING TO THEIR POSITION IS CALLED…_____- IOEGRAM.

37. GENETICS IS THE STUDY OF …_____ALL OF THE MENTIONED.

38. WHICH OF THE FOLLOWING HAVE CHROMOSOME NUMBER FROM 8 TO 16 AND THEIR MOST COMMON NUMBER _____.ANGIOSPERM

39. WHICH OF THE FOLLOWING IS NOT AN EXAMPLE OF GENETIC CAUSES OF VARIATION…_____NUTRIENT.

40. BANDING PATTERN OF CHROMOSOME USEDVARIETY OF TECHNIQUES AND STAIN THE GC RICH DNA…_____-. R BANDING.

41. FOR HIGH RESOLUTION CHROMOSOMES ANALYSIS CYCLE ARE ARRESTED BEFORE STAINING…_____- METAPHASE. ,WHICH STAGE OF THE CELL

42. THE DIAMETER OF DNA DOUBLE HELIX IS_____- .2NM

43. WHICH OF THE FOLLOWING STATEMENT IS NOT CORRECT ABOUT THE HEREDITARY VARIATION CONCEPTS FROM MENDELS WORK…_____. THERE

WAS NOT A CLEAR INDICATION OF HEREDITY AND VARIATIONS IN HIS WORK.

44. IN 14% OF THE NUCLEOTIDES FROM DNA NUCLEOTIDE CONTAINS THE BASE T WHAT % WILL CONTAIN THE BASE G_____.36%

45. THE DIAMETER OF PACKED NUCLEOSOME…_____…11NM

46. HISTONES HAVE TWO BASIC AMINO ACIDS_____ ARGININE AND LYSINE

47. WHAT IS THE OTHER NAME OF A POLYTENE CHROMOSOME?....._____ SALIVARY GLANDS CHROMOSOME.

48. MEIOSIS IN MALES IS CALLED…____..SPERMATOGENSIS

49. GENETICS OR RESEARCH CANSTUDY THE GENOTYPE BASED ON THE PHENOTYPE IN CLASSIC GENETICS THEIR_____.GENE KNOCKOUT

50. CHROMOSOMES WERE DESCRIBED BYSTRAUSBERGER IN 1875. CHROMOSOME WAS FIRST USED BY_____ WALDEYER IN 1888.

51. VATRIATION IS A DIFFERENCE THAT CAN BE SEEN IN INDIVIDUAL OF THE SAME SPECIE…_____.. IT CAN BE DUE TO GENETIC MAKEUP, ENVIRONMENT OR BY COMBINATION OF BOTH.

52.Which one restores the paired condition for both chromosomes and genes? ___Fertilization

53. Which of followings have single genotype _____Blood group Band O

54. Meiosis, unlike mitosis involves _____1 nuclear division

55. The mitotic apparatus/spindles microtubules comprise of _____centrosomes, Polar microtubules and astral microtubules

56. ….variation describes the situation in which there are many intermediates between the exterem_____continuous

57. The molecular weight of the histone protein H1 is _____ 22500

58. Genetic material in cells is organized into chromosomes. Prokaryotes generally have chromosome. Eukaryotes have chromosomes in their nuclei

_____

One circular, Multiple and linear

59. Which epistasis between beneficial mutations generates improvements in function_____Positiveepistasis

60. Exchange of DNA segments between chromosomes is known as _____Crossing over

61. Which one of the following is not correct about organism with their chromosome numbers?

_____Angios perms have 78 chromosomes

62. The frequency of crossing over between any two linked genes is_____Proportional to the distance between them

63. A linkage map_____shows the actual ordering and spacing of genes on a chromosome

64. GO phase is. _____Post-mitotic phase

65. The cytokinesis in animal cells is characterize_____Cleavage furrow

66. When two mutations together have a smaller effect than expected from their effects when

alone. itiscalled_____Negative epistasis

67. Groups of human chromosomes are_____7

68. In metaphase |, line up at the metaphase plate, with one chromosome facing each pole_____Tetrads

69. Which one of following statement is correct about homologous chromosomes in human cell?_____Male cells have 22 pairs of homologous and one pair of

non-homologous chromosomes

70. Which of the following sequences shows the correct life cycle for humans?_____haploid egg + haploid sperm --> diploid zygote --> mitosis -> diploid adult --> meiosis -> haploid gametes

71. GENETICS OR RESEARCH CANSTUDY THE GENOTYPE BASED ON THE PHENOTYPE

IN CLASSIC GENETICS

THROUGH…_____

_____.GENE KNOCKOUT

72. CHROMOSOMES WERE DESCRIBED BY STRAUSBERGER IN 1875. CHROMOSOME WAS FIRST USED BY_____ WALDEYER IN 1888.

73. VATRIATION IS A DIFFERENCE THAT CAN BE SEEN IN INDIVIDUAL OF THE SAME SPECIE_____.. IT CAN BE DUE TO

GENETIC MAKEUP, ENVIRONMENT OR BY COMBINATION OF BOTH.

74. WHICH OF THE FOLLOWING STATEMENT ABOUT EUKARYOTIC CHROMOSOME IS WRONG_____….EUKARYOTIC CHROMOSOME IS FOUND IN CYTOPLASM.

75. --- ARE PROTEINS USED TO PACKAGE DNA…_____.HISTONES.

76. WHICH OF THE FOLLOWING HAS HIGHEST NUMBER OF CHROMOSOM__HORSETAIL

77. HOW MANY NUM OF BANDS CAN BE RECOGNIZED ON GIANT CHROMOSOME OF THE

DROSOPHILA…_____

_____ 5000

78. CHROMOSOME IDENTIFY

BY…_____ ALL OF THE GIVEN.

79. IS AN EXAMPLE OF ACQUIRED VARIATION

…_____. ATHLETIC SKILLS.

80. WHICH OF THE FOLLOWING STATEMENT ABOUT PROKARYOTIC CHROMOSOME IS

WRONG…____. PROKARYOTIC CHROMOSOME MADE OF DNA AND HISTONES

81. CARGAPHS RULES FOR DNA BASE PAIRING INDICATES THAT …_____..A+T =G+C

82. THE LONGEST STAGE IN THE CELL CYCLE IS

…_____INTERPHASE

83. CHROMOSOME HAVING CENTROMERE AT ONE END OF ARMS _____ TELOCENTRIC

GULL

84. HAVING THE SAME LENGTH, SHAPE, LOCATION AND GENES…_____..AUTOSOMES.

85. SKIN COLOR PIGMENTATION IN HUMANS IS CONTROLLED BY AT LEAST

…_____

_____..THREE GENES.

86. HOW MANY HOURS DOES THE G1 PHASE OF INTERPHAE TAKE TO COMPLETE A

CYCLE_____

_____….6 TO 12

87. HISTORICALLY FIRSTLY DEVELOPED SUB DISCIPLINE OF

GENETICS…_____

__.TRANSMISSION GENETICS

88. DICOTS IN GENERAL , HAVE A – OF CHROMOSOME THAN

MONOCOTS…_____

_____..HIGHER LONGER.

89. WHICH ONE CHARACTERISTICS EXPRESSES ITSELF OVER THE OTHER KNOWN

AS…_____

_____.DOMINANT.

90. CENTROMERE BREAKS BY THE REMOVAL OF A PROTEIN …_____. SECURIN

91. WHICH SUB DISCIPLINE OF THE GENETICS IS CONSIDERED THE HEREDITY OF THE

TRAITS IN GROUPS, BUT THE TRAITS OF CONCERNS ARE DETERMINED BY MANY

GENES…

_____.QUAN TITATIVE GENETICS.

92. GENERALLY KARYOTYPES REPRESENTED BY ARRANGING IN THE --- ORDER OF THE

SIZE KEEPING THEIR CENTROMERE IN A…._____ DESCENDING ,STRAIGHT LINE.

93. WHICH OF THE FOLLOWING ARE USEFULL INDICATORS TO CHECK THE WATER

QUALITY_____

_____…PHYTOPLANKTON

94. THERE ARE ABOUT --- LOOPS IN THE CHROMOSOME OF E.COLI .THESE ARE HIGHLY

TWISTED OR SUPERCOILED STRUCTURE WITH ABOUT ---- NUCLEOTIDE

PAIRS…_____

_____..50 FOUR.

95. EPISTASIS IS INTERACTION BETWEEN – GENES…_____.2

96. STAGE OF PROPHASE IN WHICH NUCLEAR MEMBRANE

DISSOLVES…..._____

_____ STAGE 5 OR 1 STAGE

97. WHAT TYPE OF SEGREGATION OCCURS WHEN ALLELES AT THE TWO GENE LOCI

SEGREGATE TOGETHER AND ARE TRANSMITTED AS A

UNIT…_____..I NDEPENDENT SEGREGATION.

98. WHICH TYPE OF INHERITANCE APPEARS IN AB BLOOD GROUP

PHENOTYPE_____
_____ ….CO DOMINANCE

99. ACCORDING TO…… GENETIC MATERIAL PARENTS MIXES DURING FERTILIZATION….

_____
_____BLENDING HYPOTHESIS.

100. PROPHASE… _____CHROMOSOME CONDENSE AND BECOME VISIBLE

101. Primary oocyte produces polar bodies……_____
__ 2

102. Which two alleles are called co-dominant one another and are expressed when

present?_____
____Allele A and Allele i

103. During recessive epistasis. which color of pigeon is produced by recessive red gene with or

without
spread?_____
_____Any color

104. The DNA between nucleosome is called as linker DNA. Its length is _____20-60 bp

105. Mendel determined the segregation of alleles at single gene locus based on

_____
_____Monohybrid cross

106. Darker bands are generally found near the centromere or on the ends (telomeres) of the

chromosome. The position of the dark-staining are or
_____

_____Heterochrom
atic region, heterochromatin

107. During metaphase mitosis chromosome
_____Line up at the equator

108. During stage telophase l chromosomes are.....
_____Haploid

109. The law of independent assortment with dihybrid cross gives genotypic ratio in F2 as:

_____

_____9:3:3:1

110. In …. centromere splits into two parts while in….. it does not split. _____Mitosis, Meiosis I

111. A male bee sex is

_____

_____Haploid

112. Shepherd's purse has two shape heart and narrow. If you cross a true breeding heart to a true

breeding narrow, F1 will give

_____

_Narrow

113. The diameter of condensed scaffold associated chromatin is_____11 nm

114. Which of the following is not the part of Interphase in the cell cycle?_____ M phase

115. Which of the following is true about phosphodiester linkage?____ 5'-phosphate group of

one nucleotide unit is joined to the 3’-hydroxyl group of the next nucleotide

116. What is the composition of nucleotide?_____ a base + a sugar + phosphate

117. Which one of the following statement is correct about human genes?____ 30% genes in

humans are di-allelic and they exist in two forms

118. The diameter of chromatin is_____ _11 nm

119. The diameter of DNA nucleosome on the chromosome scaffold is_____2 nm

120. Alleles separate during _____and reunite during _____Gametogenesis, Fertilization

121. ____states that the two alleles of a gene found on each of a pair of chromosomes separate

independently of one another into sex cells._____ Mendel's law of segregation

122. The haploid cells of eukaryotes are usually known as _____Gametes

123. Which one of the following is show polygenic pattern of inheritance?_____ All of the given

124. How many primary molecular mechanisms of epigenetics are identified?_____ Two

125. E.coli has about _____genes are organized into its one circular chromosome____

_____

_____3000 to 4000

126. Pepper colour is controlled by _____Two genes

127. ABO blood system is controlled by_ _____A tri-allelic gene

128. Which one of the following statement is not correct about Co-dominance?_____

_____Both alleles are expressed in a homozygous individuals

129. Which one is not regulate gene expression?

_____Nucleotide modification

130. Darker bands are generally found near the centromere or on the ends (telomeres) of the chromosome. The position of the dark-staining are

_____or

_____Heterochromatic region, heterochromatin

131. In case of two gene interaction, the gene which is masking the expression of another is called

_____

_____Recessive

132. Which of the following is not a common mode of histone modification in eukaryotes?___

_____

_____Sulphonation

133. Mitotic apparatus helps in.....____ Chromosome movement

134. The nucleosome is composed of a core of _____histone proteins and DNA

135. _____bp wrapped around them._____ Eight, 147

136. Name the phenomenon which can break the occurrence of linkage?_____ Crossing over

137. _trait is a stable and heritable phenotype resulting from changes in chromosome without alterations in the DNA sequence_____ __ Epigenetic

138. Which one of the fur color of rabbit is controlled by maximum numbers of genotypes?_____ _____ Chinchilla

139. Which one of the following statement is not correct about genome characteristics of prokaryotes?____ Prokaryotes have less genome size as compared to eukaryotes

140. Inherited variations result from the_____ Activity of genes

141. Which of the following is not the property of Garden Pea plant that was used by GregorMendel for his experiment?_____ _____ Long generation time

142. Which comb shape is appeared when the chicken is homozygous recessive in both the R and

143. P locus?_____ _____ Walnut Combs

144. Which sub discipline of the genetics is considered the heredity of traits in groups of individuals, but the traits of concern are determined by many genes simultaneously?_____ _____ Quantitative genetics

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145. Which of the following organism has highest numbers of chromosome?_____ Horsetail

146. In physical map, units of distance are expressed in_____ Base pairs or Mbs

147. When one characteristic expresses itself over the other known as_____ Dominant

148. The trait that does not show through in the first generation is called_____Recessive

149. In____sister chromatids separate and move along the kinetochore microtubules toward

opposite ends of the
cell._____
____ Anaphase

150. Building blocks of nucleic acids are
_____ Nucleotides

151. In which of the cats the pattern observed in coat colour is due to environmental effect?____

_____
_____ Siamese

152. When one phenotypic trait is determined by multiple alleles then it is called as __Pleiotropic

153. How many numbers of gene are present in Drosophila? _____13700

154. Which is a hereditary disorder characterized by lung congestion, infection and malabsorption

of nutrients by the pancreas?

_____Huntington

disease

155. Which one following histone protein has high molecular weight, greater number of amino acid

and high percentage of lysine and arginine?

_____H1

156. Which of the following blood group is considered a universal donor? _____O

157. Which statement is correct about genetic and physical mapping?

_____The some genes are

close together on the genetic

map and also are close together on the physical map of the chromosome

158. Polygenic traits are also affected by the persons environment, so they are called

_____

_____Multifactorial

159. Which is a histone deacetylase inhibitor?

_____ vorinostat

160. Generally, karyotypes represent by arranging in the… order of size keeping their centromere in a…..

_____

__Descending, straight line

161. The spindle apparatus is formed during the phase of mitosis. _____Prophase

162. During, _ the effects of prophase and pro-metaphase are reversed _____Telophase

163. Meiosis results in, _____----

_____4 diploid daughter call

164. The allelic series refers to

_____Multiple alleles

165. The crossing-over occurs at

_____Chias mata

166. Which one of following statement is not correct about continuous variation?

_____-Continuous variation controlled by a lot of genes

167. have the same length, shape. centromere location. and genes ____Paired chromosomes

168. Mutational changes are….. and epigenetic changes can be….. __Irreversible, Reversible

169. Position dependent method of diseased gene identification follows _____Reverse genetics

170. Which statement is not correct about epigenetic regulation in identical twins?

_____The epigenetic tags can have such an effect on the

twins that one can develop a disease and the other is also

171. Which one of the following genotype expresses the Green color of pepper? _____rr/yy

172. Which one of following statement is correct? _____-_Father with X-linked

disorder will transmit the mutant allele to all daughters but to no sons

173. Band that indicates constitutive heterochromatin _____C band

174. What is the process of transfer of human blood known as? _____Transfusion

175. All offspring of same variety is called as _____True breed

176. In DNA double helix. the two DNA chains are held together by

_____Hydrogen bonds between the pair of bases

177. if 14% of the nucleotides from a DNA molecule contain the base T. what percent will contain

the base G?

_____

_____14%

178. According to. . genetic material of the parents mixes during

fertilization._____

_____Blending hypothesis

179. Epistasis is the interaction between….. genes

_____2

180. On what basis four major blood groups is classified as positive and negative blood type?

_____

_____Rh factor

181. Which one of following statements is correct about to the Mendel Law of

Dominance?_____In a cross of parents that are pure for

contrasting traits only one form of the trait will appear in the next generation

182. Which one is building blocks of chromosomes?
_____Nucleosome

183. Genetists or researchers can study the genotype based on the phenotype in classical/forward

genetics through
_____
_DNA sequencing

184. According to particulate hypothesis, parents pass on distinct heritable units. Those distinct

heritable units are now called as
_____G
enes

185. About 90% of the time taken for meiosis is required for _____Prophase 1

186. How much length of the DNA sequence within kinetochores regions? _____120 bp

187. What is the unit of linkage map?
_____Centi-morgan

188. Due to… during meiosis |, the two sister chromatids of each chromosome are no longer

genetically identical

_____

_Crossing-over

189. DNA replication is a type of.

_____ semi-

Conservative

190. 70% genes in human are

_____Men

o-allelic

191. Which is the cause of epigenetics?

_____All of the mentioned

192. Technique that gives an rough idea of gene location

_____Genetic mapping

193. A female bee sex is _____Zw

194. Fragile X chromosome affects the gene_____FMR1

195. Stage of prophase at which nuclear membrane dissolves... _____Stage 2

196. How many numbers of alleles control the fur color of rabbit? _____Four

197. The ABO blood group in humans is determined by _____Multiple alleles

198. Which map is primarily based on the locations of landmarks along a DNA molecule_____Physicalmapping

199. Genetic make-up of an organism is called_____Genotype

200. The type of cell division important for tissue regeneration is _____Mitosis

201. …occurs when one mutation has the opposite effect when in the presence of another mutation

_____

_____Sign epistasis

202. Which of the following has longer chromosomes.

_____ plants

203. Which one of the following is not correct about the influence of environmental factors on

epigenetics?

_____

_____Social

interactions and physical activity not affect the epigenome

204. Name the organism whose first genetic map was made? _____Drosophila

205. Which one of the statement is not correct about the position dependent method of disease

causing gene mapping in human?

_____Starting at

the phenotype. determining which protein was involved and then getting to

the gene through the protein

206. Which is the correct sequence of Bottom up mapping technique?

_____Make

random clones" Sequence each

clone” Overlap sequence read Overlap contigs for complete sequence

207. The numbers of genotypes can be calculated on the basis of, _____Numbers of alleles

208. When a cell divides. what do we call the 2 new cells? _____Daughter cells

209. Which statement is not correct about recessive epistasis in pigeons?_____Patter is epistatic to spread color

210. Which is correct about the comb shape in chickens? _____Four different comb shapes

is controlled by two genes found on two different chromosomes

211. Chromosomal theory of inheritance states that behavior of chromosomes is according to

_____Mendel's law of segregation and independent assortment

212. A nucleosome consists of

_____DNA and histones

213. The DNA in a bacterial (prokaryotic) chromosome is best described as

_____A single circular double-helical molecule

214. In humans, a zygote is a cell having chromosomes _____Diploid: 46

215. Which trait will produce in F1 generation of the crossing a brown pepper (RRyy) with a yellow pepper (VY)?_____Brown

216. Which one of following is an example of diploid cells? _____All of the mentioned

217. The splitting of sister chromatids occur at_____Anaphase

218. Which are major factors that affect the epigenome? _____Exposure to toxins and diet

219. There are about… loops in the chromosome of E. coli. These loops are highly twisted or supercoiled structure with about….million nucleotide pairs. _____50.four

220. During anaphase of mitosis. push against each other. that stretches the cell into an oval

shapeD_____Non-kinetochore spindle fibers.

# BIO301

# SHORT QUESTION

**Q**. Genetic Disorder?

A genetic disorder is a genetic problem caused by one or more abnormalities in the genome. Most genetic disordersare quite rare and affect one person in every several thousands or millions. Genetic disorders may be hereditary, meaning that they are passed down from the parents' genes.

Q.Genetic Mapping?

Gene mapping describes the methods used to identify the locus of a gene and the distances between genes. The essence of all genome mapping is to place a collection of molecular markers onto their respective positions on the genome.

Q.What Is Location Of Intronic Sequence With Respect To Exons?

Sequences that are joined together in the final mature RNA after RNA splicing areexons. Introns are found in the genes of most organisms and many viruses, and can be located in a wide range of genes, including those that generate proteins, ribosomal RNA (rRNA), and transfer RNA (tRNA).

Q..Write Down At Least Three Mitochondrial Diseases? MELAS

Mitochondrial encephalomyopathy, lactic acidosis and stroke-like episodes is

MELAS. Kearns-Sayre Syndrome NARP

NARP stands for neurogenic weakness, ataxia and retinitis pigmentosa.
Q.Structulchamge in chromosome?

Structural Change in the Structure of Chromosomes. ... Chromosomes are the vehicle of hereditary material or genes. Any alteration, addition or deletion of chromosomal part leads to alteration of number, position or sequence of genes in the chromosome.

Q. Genetic Mapping?

Gene mapping describes the methods used to identify the locus of a gene and the distances between genes. The essence of all genome

mapping is to place a collection of molecular markers onto their respective positions on the genome.

Q. Sickle cell anemia?

Sickle cell anemia (sickle cell disease) is a disorder of the blood caused by an inherited abnormal hemoglobin (the oxygen-carrying protein within the red blood cells). The abnormal hemoglobin causes distorted (sickled) red blood cells. The sickled red blood cells are fragile and prone to rupture.

Q. Point mutation and cause?

A point mutation or substitution is a genetic mutation where a single nucleotide base is changed, inserted or deleted from a sequence of DNA or RNA. Point mutations have a variety of effects on the downstream protein product—consequences that are moderately predictable based upon the specifics of the mutation.

Cause:

The protein may lose its function, which can result ina disease in the organism. For example, sicklecell disease is caused by a single point mutation (a missense mutation) in the beta-hemoglobin gene that converts a GAG codon into GUG, which encodes the amino acid valine rather than glutamic acid.

Q.Mutation nomenclature?

Standard nomenclature based on genomic DNA reference sequences and RNA reference sequences is not shown. “Genomic DNA reference sequence” simply indicates any human DNA sequence in the database

that is not based on a cDNA sequence. ... Example of standard mutation nomenclaturebased on a coding DNA sequence.

Q.VNTR and application?

VNTR are short nucleotide sequences organized as a tandem repeats on genomes. Found on many chromosomes, Show variations in length between individuals.

Applications of VNTR Microbiology DNA fingerprinting Genetic diversity Forensics Mapping of genomes Breeding patterns of wild or domesticated animals .

Q.SingleAnd Multifactorial Mutation?

Single gene disorders are caused by DNA changes in one particular gene, and often have predictable inheritance patterns. Over 10,000 human disorders are caused by a change, known as a mutation, in a single gene. These are known as single gene disorders

Multifactorial Disorders. Researchers are learning that nearly all conditions and diseases have a genetic component. Some disorders, such as sickle cell disease and cystic fibrosis, are caused by mutations in a single gene. ... Conditions caused by many contributing factors are called complex or multi factorial disorders.

Q.5 Complication Inheritance Pattern?

Complications to inheritance patterns Multiple genes - epistasis, polygenic traits Genes & theenvironment - sex-influenced traits, incomplete penetrance

Q.AutosomalDomenet Disordered?

A single abnormal gene on one of the first 22 nonsex (autosomal) chromosomes from either parent can cause an autosomal disorder. Dominant inheritance means an abnormal gene from one parent can cause disease. ... Examples of autosomal dominant disorders include Marfan syndrome and neurofibromatosis type 1.

Q. Function Of STR?

Short Tandem Repeat (STR) analysis is one of the most useful methods in molecular biology which is used to compare specific loci on DNA from two or more samples. A short tandem repeat is a microsatellite, consisting of a unit of two to thirteen nucleotides repeated hundreds of times in a row on the DNA strand.

Q. During DNA Extraction How Proteins Are Denatured? Adding proteinase

Q. Define Locus?

A locus (plural loci) in genetics is a fixed position on a chromosome, like the position of a gene or amarker (genetic marker). Each chromosome carries many genes; human's estimated 'haploid' protein coding genes are 19,000–20,000, on the 23 different chromosomes.

Q. Sex Linked Traits And Disorder?

Genes on the X or Y chromosome are called sex-linked. ... For example, an X-linked recessive allele in humans causes haemophilia, which is much more common in males than females because males are hemizygous and therefore express thetrait when they inherit one mutant allele.

Q. Define Multiple Alleles With Example?

Multiple alleles Three or more alternative forms of a gene (alleles) that can occupy the same locus. However, only two of the alleles can be present in a single organism. For example, the ABO system of blood groups is controlled by three alleles, only two of which are present in an individual.

Q.Low and full Penetrant

Low Penetrance An allele with low penetrance will only sometimes produce the symptom or trait with which it has been associated at a detectable level. In low penetrance, it is difficult to distinguish environmental from genetic factors.

Highly Penetrant If an allele is highly penetrant, and then the trait it produces will almost always be apparent in an individual carrying the allele.

Q.Frequency of autosomal recessive disorders

Frequency of autosomal recessive disorders is between 2-2.5 per 1000 individuals.

Q.Polyploidy

Polyploidy is the heritable condition of possessing more than two complete sets of chromosomesTwo major types

Autopolyploidy

Allopolyploidy

Q.Frequency of autosomal dominant disorders

Frequency of autosomal dominant disorders varies between 3 – 9.5 per 1000 individuals

Q.Trisomy

Trisomy is a type of polysomy in which there are three copies of a particular chromosome, instead of the normal two. Trisomy is a type of aneuploidy. Trisomy of chromosome 21, which is found in Down syndrome, is called trisomy 21 inversion mutation Inversion mutations only affects a small part of the gene.  May a single nucleotide or more than one nucleotides are involved.

- X-linked recessive disorders
- Duchene Muscular Dystrophy
- Hunter's Disease
- Menkes Disease
- Hemophilia A and B
- Color Blindness

Q.Diagnostic tests for genetic disorders

Physical analysis: Physical analysis for affected individual
Ultrasonography of fetus: Ultrasonography of fetus determines malformations of head, internal organs, and extremities

Analysis of amniotic fluids: Amniotic fluid analysis to determine genetic and chromosomal disorders after 14 wks gestation. More than 200 various genetic diseases easily be detected. Maternal blood

analysis: Maternal blood analysis to observe abnormal fetus.,

Q.Polymorphism

Polymorphism, in biology, a discontinuous genetic variation resulting in the occurrence of several different forms or types of individuals among the members of a single species

Aneuploidy:

Change in chromosomes number can occur by the addition/deletion of chromosome or part of a chromosome

.Euploidy:

Gain of one or more complete sets of chromosomes

pattern of inheritance;

Most genes have one or more versions due to mutations or polymorphisms referred to as alleles. ... There are five basic

modes of inheritance for single-gene diseases: autosomal dominant, autosomal recessive, X-linked dominant, X-linked recessive, and mitochondrial.

Q. Multifactorial diseases six

Genetic disorders controlled by many genes plus the effects of the environment

Asthma,Cancers ,Diabetes ,Heart diseases,Hypertension,Obesity

Q.Pleiotropy

Pleiotropy The ability of a gene to affect an organism in many ways is called pleiotropy. Pleiotropy refers to an allele which has more than one effect on the phenotype.

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Q.Types of deletion include the following:

• Terminal deletion – a deletion that occurs towards the end of a chromosome.

• Intercalary/interstitial deletion – a deletion that occurs from the interior of a chromosome.

•Genetic maps have been used successfully to find the single gene responsible inherited disorders, like cystic fibrosis and muscular dystrophy.

Q.How genetic mapping performed

Scientists isolate DNA from samples and examine it for the unique patterns of bases. Molecular techniques are referred to as genotyping polymorphisms or markers.

Q. Define Epistasis

Epistasis and modifier genes Epistasis is a phenomenon that consists of the effect of one gene being dependent on the presence of one or more modifier genes Type of polygenic inheritance where alleles at one gene locus can hide or prevent expression of alleles at second gene locus.

Q. VNTR and Applications of VNTR

VNTR are short nucleotide sequences organized as a tandem repeats on genomes.

Found on many chromosomes

Show variations in length between individuals.

Applications of VNTR

- Microbiology
- DNA fingerprinting
- Genetic diversity
- Forensics
- Mapping of genomes
- Breeding patterns of wild or domesticated animals

Q. Genomic Imprinting

Genomic Imprinting Epigenetic marking of a locus on the basis of parental origin. Results in monoallelic gene expression. Some genes are expressed only from the maternal genome and some only from the paternal genome. It is estimated that about 40 genes are imprinted and they can be found on several different chromosomes .

Q. Point mutations

Point mutations affect single sites on DNA.

Substitution of one base for another.

Microdeletion – a relatively small amount of deletion (up to 5Mb that could include a dozen genes).

Applications of molecular markers – short range

• Parentage determination

• Genetic distance estimation

• Determination of twin zygosity

Applications of Molecular Markers – Long Rang

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