Mcqs from lectures 89 to 98

1). 1 map unit a part means: genes are

a) Close together. B) Further apart c) First close then far d) First far then close.

2) Linked genes are _____together

a) Identified b) Located c) Mapped d)Inherited

3). which phenomenon used for identification of many diseased genes in humans?

a) Gens inheritance b) Gene mutation c) Gene regulations d) Gene identification

4). How many common way are used in human genetic mapping.

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

5). Forward genetics is referred to which method:

a) Position dependent b) Position independent c) Positional cloning d) Oligonucleotide method.

6). Condition when two or more genes influence the expression of one trait.

a) Physical Mapping b) Polygenic inheritance: c) Gene identification d) All of these

7).Construction of maps of ordered landmarks provide which range maps:

a) Long b) Short c) Middle d) All of these

8).Units of distance are expressed in:

a) base pairs b)Mbs c) Meters d) Both a and b

9). failure of two genes to assort independently.

a) Linkage b) Chromosome mapping c) Gene expression d) All of these

10). Cross over frequency =

a) Units/Map distance b) (Map distance)(units.) c) None of these d) Map distance/units

12). Random clones are made in which mapping

a) Bottom-up b) Top down c) Bottom-bottom d) In all of these

13). New markers are used for _____ resolution linkage analysis

a) Lower b) Middle c) Higher d) None

14). Isolating protein product of the gene is being in which genetic mapping method:

a) Oligonucleotide b) Antibody c) Position dependent d) Position independent

15). Multiple genes produce a spectrum of resulting:

a) Genotype b) Gene mutation c) Phenotypes d) Gene expression

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17). Polygenic inheritance is a condition when____ genes influence the expression of ____trait.

a) Two, one b) One, two c) Three, one d) One, three

19). Examples of polygenic traits:

a) Eye color b) Height c) intelligence d) All of these

20). Polygenic traits are also affected by the person's environment, so they are called

a) Non multifactorial b) Multifactorial c) polygenic traits d) polygenic inherited

22). When more dominant alleles appear in the genotype the phenotype will

a) Increases b) Decreases c) Stop d) Both a and b

23). _____mutation has a fitter phenotype than either _____ mutation.

a) Double, single b) Single, double c) Single, single d) Double, double

24). _____ is the Type of polygenic inheritance:

a) Peliotropy b) Positional cloning c) polygenic trait d) Epistasis

25). Positive epistasis referred to which mutation:

a) double mutation b) Single mutation c) Both a and b d) None of these

27) In Dominant epistasis: Epistatic gene exerts its affect with the presence of a _ _____allele.?

a) Dominant b) Recessive c) Both a and b d)None of these

28) Fur color in Labrador Retrievers is controlled by_____ separate gene?

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

29) Father with disorder will transmit the mutant allele to all

a) Son b) Daughter c) Mother d) none

30)If a carrier female mates a male with disorder, _____ chance that each child born with disorder,

a) 50 % b) 100% c) 75% d) 25%

31.) Which of the following is Human Sex linked Disorders

a) Color blindness b) Duchenne muscular dystrophy c) Hemophilia d) All of these

32) The genotype of a carrier Color blind female is

A) XcXc b) XcX C) XcY d) XcYc

33) DNA markers Help in

A) Locate the Trait B) locate the chromosomes

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C) locate the loci D) identifying the gene responsible for trait

34. What happens if there is more DNA markers present in on genetic map.

A) it leads to have a dieses B) shows the defective gene
C) abnormal chromosomes D) One will be closely linked to a dieses gene

35. How many Alleles a Diploid Individual have

A) One Allele B) three Alleles C) Multiples Alleles D) two Alleles

36. What % in Humans there is mono Allelic

A) 25 % B) 50% C) 70% D) 80%

37. Genes with 4 alleles can generate _____of genotypes.

A) 3 B) 6 C) 9 D) 10

38. ABO blood group system is an example of

A)Tri Allelic B) Di Allelic C) Multiple Allelic D) Co Dominance

39. How many genotype the ABO blood group shows

A) 3 B) 6 C) 9 D) 10

40. Blood groups can be +ve or –ve based on

A) Antigen B) Antibodies C) Rh Factor D) Hydrogen Ions

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41. Which blood group do not carries Any Antigens?

A) Blood group A B) Blood group B C) Blood group AB D) Blood group O

42. Which type of blood group is known as universal recipient?

A) blood group A B) Blood group B C) Blood group AB D) Blood group O

43. Chiasmata occurs between two _____

A) sister chromatids B) non sister chromatids C) homologus chromosomes D) alleles

44. Crossing over occurs in _____

A) Prophase I B) Meta phase I C) Ana phase I D) Telo phase I

45. Linkage and crossing over a phenomenon that may be seen during____

A) Mitosis B) Meiosis C) Reproduction D) Cell cycle

46. During the crossing over if the non-sister chromatids are far apart the ratio of crossing over will be.

A) Fewer B) High C) Middle D) Normal

Mcqs from lecture no. 99 to 108

1) The example of Non-coding RNAs:
a) dsRNA b) shRNA c) mRNA d) siRNAs
2) siRNAs are small RNAs which Present in:
a) Nucleus b) Chromosomes c) cDNA d) mRNA
3) There is anestimation that about____ genes are imprinted and they can be found on several different chromosomes.
a) 60 b)50 c) 40 d) 30
4) By_____ methods the histone modification occurs
a) 5 b) 4 c) 3 d) 2
5) Which group tag DNA and repress gene expression?
a) Acetyl b) Methyl c) Vinyl d) Both A and b
6) Which factors affects the epigenome?
a) physical activity b) Social interactions c) Both a and b d) None
7) Gene expression is effected by which phenomenon?
a) RNA interference b) Histone modification c) DNA methylation d) All of these
8) The term is analogous to the severity of a condition in clinical medicine

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a) Expressivity b) gene silencing c) Gene activation d) Both a and b

9) incomplete Penetrance occurs when some individuals _____the trait, even though they carry the allele

a) Exposed b) Don't express c) Express d) Both a and c

10) Penetrance is expressed at the frequency of 7% in the age:

a) 10 b) 20 c) 60 d) 65

11) A normal male chromosome pattern would be described as:

a) 46, XY b) 23, XY c) 46, xy d) 23, xy

12) Which are structural abnormalities:

a) Deletion b) Inversion c) Duplication d) All of these

b) _____Chromosome aberration usually due to de novo error in meiosis.

a) Structural b) Numerical c) Both a and b d) None of these

c) If gene is switched on the chromatin is

a) Open b) Active c) Condensed d) Both a and b

d) Which prominent mechanisms involve in epigenetic?

a) Gene silencing b) Gene activation c) Both a and b d) Gene expression

e) Exposure to toxins and diet are major factors that affect the ____

a) Hormone b) Epigenome c) Phenotype d) Genotype

f) _____chromosomal aberration may be due to de novo error in meiosis or inherited

a) Structural b)Numerical c) Both A & B d) None of these

g) In down syndrome number of chromosome are

a) 47 b) 21 c) 69 d) 46

h) Microscopic examination of chromosomes identify and classify based on their

a. Size b) Location of the centromere c) Banding patterns d) All of these

i) Which numerical change occurs in chromosomal aberration?

a) Aneuploidy b) Translocations c) Deletions d) Duplications

j) In _____penetrance, it is difficult to distinguish environmental from genetic factors.

a) Low b) High c) Reduced d) Complete

k) The allele is said to have _____if all individuals who have the disease-causing mutation have clinical symptoms of the disease.

a) complete penetrance b) Incomplete penetrance c) Low penetrance d) High penetrance

Mcqs from lecture no. 109 to 118

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Bio-301 Genetics (Final Term) MCQS

1) Which of the following is Sex chromosome abnormalities:
   a) Klinefelter syndrome b) Down syndrome c) Patau syndrome d) Edwards syndrome

2) In Triploidy chromosome abnormality number of chromosomes are:
   a) 47 b) 46 c) 21 d) 69

3) _____relatively common disorder caused by the loss of genetic material from one of the sex chromosomes:
   a) Edwards syndrome b) Patau syndrome c) Turner syndrome d) None of these

4) When there is incorrect amount of genetic material then ____abnormality will occur
   a) Balanced b) Unbalanced c) Both a and b d) None of these

5) Transfer of genetic material from one chromosome to another is called:
   a) Translocation b) Translation c)Transportation d) Crossing over

6) exchange of material between two different chromosomes is called a _____translocation
   a) reciprocal b) Robertsonian c) Nonreciprocal d) None of these

7) The most common translocation in humans involves chromosome by number:
   a) 21 ans 22 b) 45 and 46 c) 15 and 16 d) 13 and 14

8) When no genetic information increases (extra) or decreases (missing)genes then translocation is:
   a) Balanced b) Unbalanced c) low d) High

9) **Which is Common human disease caused by translocation:**
   a) Cancer b) Infertility c) Leukemia d) All of these

10) If two homologous chromosomes fail to separate during cell division this phenomenon is called as:
   a) Non-disjunction b) Proper disjunction c) chromosomes separation d) both a and b

11) _____non-disjunction results in cells with different number of chromosomes:
   a) Mitotic b) Meiotic c) in A & B d) meiosis I

12) Which is Cause of non-disjunction
   a) Radiation b) Aging effect on primary oocyte c) Delayed fertilization after ovulation
   b) All of these

13) Trisomy is a type of polysomy in which there are ____copies of a particular chromosome, instead of the normal two
   a) Three b) four c) five d) six

14) if arms are copied from two different chromosomes then which type of trisomy occur

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a) Primary trisomy b) Partial trisomy c) Secondary trisomy d) Tertiary trisomy

15. In case of sex-chromosome trisomy the important type of syndrom is:

a) Down syndrome b) Edward s' syndrome c) Klinefelter syndrome d) Patau s' syndrome

16. In fruit fly the number of chromosomes are:

a) 2 b) 4 c) 6 d) 8

17. Multiples of haploid number of chromosomes is callled:

a) Autopolyploidy b) Allopolyploidy c) **Polyploidy** d) Triploidy

18. Tetraploid (4x) can be seen in:

a) Watermelon b) Cotton c) Wheat d) Kenai birch

19. Which one is Cause of polyploidy?

a) Formation of diploid sperms b) Fetus does not survive c) Non disjunction d) Loss of chromosome.

20. _____are polyploids with chromosomes derived from different species:

a) Autopolyploidy b) Allopolyploidy c) Both of these d) None of these

21. **Inter-species cross can results in _____?**

a) **Allodiploids** b) Polyploids c) Autoploids d) Auto**diploids**

22. **Colchicine** is used to promote _____?

a) Autopolyploidy b) Allopolyploidy c) Autodiploids d) Polyploidy

23. Allopolyploidy individuals can:

a) Reproduced b) Not reproduced c) Both a and b d) None of these

Mcqs from lecture no. 119 to 128

1) What percentages of Turner's syndrome are due to ring chromosome?

a) 10% b) 20% c) 30% d) 40%

2) CML is Reciprocal translocation between chromosome __ and chromosome ____:

a) 8, 22 b) 9, 22 c) 8, 23 d) 9, 23

3) Chromosomal deletion Common cause of gene duplications is Ectopic homologous:

a) Recombination b) duplication c) Replication d) Both a and b

4) In ectopic homologous recombination is a phenomenon which occur between _____ homologous chromosomes:

a) Two aligned b) Two misaligned c) aligned & misaligned d) All of these

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5) Which of the following is cause of chromosomal duplication?

a) Aneuploidy b) Polyploidy c) replication slippage d) All of these

6) Replication slippage is an error in :

a) DNA replication b) DNA duplication c) DNA quantification d) All of these

7) Pseudo genes do not produces

a) rRNA b) mRNA c) tRNA d) All of these

8) Howa human population Carrie's karyotypically detectable inversion:

a) 1% b) 2% c) 3% d) 4%

9) Dicentric bridge always occur between

a) Two centromere b) Three centromere c) Only one centromere d) All of these

10) The most common inversion seen in human chromosome is:

a) 3 b) 6 c) 9 d) 2

11) Which have no harmful effects, but increased risk for miscarriage or infertility:

a) Chromosomal duplication b) Chromosomal inversion c) Chromosomal deletions

12) Which is Point mutation of Base Pair Substitutions

a) Silent b) Missense c) Nonsense d) All of these

13) Which of the following Variation occur in Chromosome Number

a) Aneuploidy b) Hyperploidy c) Both a and b d) None of these

14) Translocations is a Variation in chromosome ____:

a) Number b) Structure c) Type d) Both a and b

15) Mutation can classified On the basis of :

a) causative agent b) molecular nature of the defect c) Their structure

b) Both a and b

16) Germline mutations occur in which cells?

a) Body cells b) Sex cells c) Abnormal cell d) Chromosome

17) most common phenotype in natural populations of the organism is called as:

a) wild type phenotype b) Wild type genotype b) Both a and b

18) Mutation that changes a mutant phenotype back into the wild type is called _____ mutation:

a) Forward b) Reverse c) Point d) Somatic

19) Mutation that alters the amino acid sequence of the protein but does not change its function is called:

a) Forward b) Reverse c) Neutral d) Both a and b

20) Which enzyme cannot distinguish base analogs:

a) DNA polymerases b) RNA polymerase c) Both A & B d) None

21) Which mutation results from changes caused by environmental, chemicals and radiations:

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a) Point b) Forward c) Reverse d) Induced

22) 5 bromouracil is an analog of ____:

a) Adenine b) Thymine c) Guanine d) Uracil

Mcqs from lecture no. 129 to 138

1) Silent mutation is not effect _____of an Organism's:

a) phenotype b) genotype c)DNA d) Genome

2) which mutations substitute one amino acid for another:

a) Point b) Forward c) Reverse d) Missense

3) a template always start coding from ____to_____:

a) 5'end to 3'end b) 3'end to 5'end c) 5'end to 5'end d) 3'end to 3'end

12) effect of Missense mutation depends on where the mutation occurs in the _____structure;

a) Gene b) DNA c) RNA d) Protein

13) which mutations convert an amino acid into a stop codon:

a) Missense b) Nonsense c) Additions d) Inversion

14) The effect of nonsense mutation is to _____the resulting protein:

a) Longer b) Shorten c) Stopping d) Finishing

15) nonsense mutations result in completely _____proteins:

a) Functional b) Nonfunctional c) Both d) None

16) proteins start coding from which codon?

a) Pro b) Met c) Thr d) Arg

21) invertion mutation only affect on ____ part of gene:

a)Small b) Large c)Effected d) Both A and b

22) Deletion mutations Is generally

a)Non functional b)Functional c)Short d)None of these

26) according to mutation nomenclature the sequence should start well ___ of the promoter of a gene:

a) 3' b) 5' c) Both d) None

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27) All variants should be described at the_____.

a) basic level b) DNA level c) Matured level d) Both a and b

28) When the entire genomic sequence is not known, a _____reference sequence should be used:

a) DNA b) RNA c) cDNA d) rRNA

30) Which symbols are used for a coding DNA sequence and for a genomic sequence:

a) C, g b) c, g c) C, G d) c , G

31) which is the Effect of mutation on gene function:

a) Null allele b) Hypomorph c) Neomorph d) All of these

32) Dominant negative effect referred to which opinion:

a) antagonizes normal product b) novel activity c) no gene product. d) Increase activity

34) Mutation in splice site usually has ___effects:

a) Good b) Normal c) Sevier d) No effect

35) Missense mutations depend on location in ____:

a) DNA b) RNA c) Protein d) Both a and b

Mcqs from lecture no. 139 to 148

1) Which of the following level start with the letters referring to first amino acid affected?

a)DNA level b)RNA level c)Protein level d)Both a and b

2)c.76A>T is a sequence for which of the following level?

a)DNA level b)RNA level c)Protein level d)All of these

4) In which case Small alphabets are used?

a)DNA b)RNA c)Protein d)Both a and b

6)Which of the following symbol represented Coding DNA at DNA level?

a)C b)r c)c d)R

7) End of intron referred to minus sign and the position _____in the intron

a)Downstream b)Upstream c)Both of these d)None of these

8) Beginning of intron shows a ____ sign in position of thymine:

a)– b)+ c)Not any d)Both a and b

11) ____ indicates a range of affected residues, separating the first and last residue affected:

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a)“>” b)“-“ c)“+” d)“_“

14) (c.76A>T) this sequence shows:

a)Range of affected residue b)Substitution c) Duplication insertion d)Both a and b

15) Which of the following is protein type mutation;

a)Silent b)Missense c)Frameshift d)All of these

18) DNA type mutation result in ____ type mutation:

a)Again DNA b)RNA c)Protein d)None of these

19) A genetic disease or disorder appears as a result of mutations in an individual’s ____:

a)Chromosome b)WBCs c)RBCs d)DNA

23) In Autosomal Dominant: Affected individuals are:

a)Heterozygous b)Homozygous c)Hemizygous d)All of these

24) Mutated alleles are present on either of the sex chromosomes in:

a)Autosomal dominant b)Autosomal recessive c)X-linked recessive d)All of these

25) In _____ inheritance pattern of genetic disorder Genes and environment both contribute:

a)Chromosomal b)Multifactorial c)Mitochondrial d)Single gene

31) Diseases appear where parents have common ancestors referred to which option:

a)Small population b)Large population c) Consanguinity d)Genetic background

33) In autosomal dominant disorders, the normal allele is _____and the abnormal allele is_____:

a)Recessive, dominant b)Dominant, recessive c)Normal, abnormal d)Abnormal, normal

36) Which of the following are Autosomal Dominant diseases:

a) Marfan syndrome b)Bloom syndrome c)Huntington's disease d)Both a and c

37) Some people with an appropriate genotype fail to express the phenotype called as _____penetrance:

a)incomplete b)reduced c)Complete d)Both a and b

38) Multiple phenotypic effects of a single gene referred to which option;

a)Expressivity b)Pleiotropy c)Penetrance d)All of these

Mcqs from lecture no. 149 to 158

1) Dominance and recessiveness are the properties of _____not_____:

a) Character, gene b) Trait, gene c) Character/trait, gene d) Character, trait

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2) If a character is not expressed in the heterozygote it will _____:

a) Dominant b) Recessive c) Neutral d) Both a and b

3) Males are_____ for loci on the X and Y chromosomes:

a) Hemizygous b) Heterozygous c) Homozygous d) All of these

4) Cystic fibrosis is _____ because only homozygotes manifest it, whereas heterozygotes show the normal_____.

a) Recessive, phenotype b) Dominant, phenotype c) Recessive, genotype d) Dominant, genotype

7) the traits due to gene present on sex chromosomes are called:

a) X_linked dominant b) X_linked recessive c) X_linked dominant then recessive

8) Females may be homozygous or heterozygous _____ may manifest the disease:

a) Hemizygous b) Homozygous c) Heterozygous d) Both a and c.

10) in X_linked inheritence disorders which of the following is more affected?

a) Males b) Females c) Both of these

12) sons will _____ & daughters will____ of unaffected father and Carrier mother cross

a) Unaffected, carrier b) Carrier affected c) Affected, carrier d) Carrier, unaffected

15) Goltz syndrom is common X_linked _____ disease:

a) Dominant b) Recessive c) Genetic d) Both a and b

18) mtDNA can passed by_____ to all children and can't passed by _____ to all children

a) Mother. Father b) Father, mother c) Both in some situation d) None of these

23) Frequency of autosomal dominant disorders varies between _____ per 1000 individuals:

a)3 _ 96 b) 4– 9.5 c) 5 – 9.5 d) 3 – 9.5

24) Frequency of autosomal recessive disorders is between_____individuals:

a) 2-2.5 per 1000 b) 2-2.5 per 100 c) 0.5 – 2 per 1000 d) 0.5 – 2 per 100

25) Frequency of X-linked disorders is between 0.5 – 2 per 1000 individuals:

a) 3- 9.5 b) 2- 2.5 c) 0.5- 2 d) 6-9

26) Frequency of multifactorial disorders is between _____per 1000 individuals.

a) 6-9 b) 10-20 c) 20 – 50 d) 30-60

27) How many diagnostic tests are uses for genetic disorders?

a) 3 b) 4 c) 5 d) 6

28) Maternal blood analysis is a test uses to observe:

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a) malformations of head b) abnormal fetus. c) Internal organs d) Extremities

29)amniotic fluid analysis is test to determine genetic and chromosomal disorders after_____ wks gestation;

a) 2 b) 7 c) 9 d) 14

30) which diagnostic test used for affected individual?

a) Physical analysis b) Maternal blood analysis c) Ultrasonography d) Both a and c

31) A complete, detailed family history is called a _____?

a) Inheritance b) Family history c) Pedigree d) Both a and b

32)A procedure that involves identification, manipulation, and transference of genetic Segments into a host to replace defective genes and to perform desired genetic activities are called;

a) Genetic counseling b) Gene therapy c) Pedigree d) Background history of parents

35) in pedigree Members of each generation are numbers from :

a) Right to left b) left to right c) Right to left to right d) Left to right to left

36) Pedigree drawing helps in understand the pattern of _____ of the disease:

a) Inheritance b) Generation number c) Stages d) Character

Mcqs from lecture no. 159 to 167

2) Pedigree analysis helps to determine

a) mode of inheritance b) Genetic history c) Sex linkages d) Mutational inheritance

3) DNA polymorphism is a sequence difference compared to a reference standard presents in at least _____of a population:

a) 2-3% b) 5-19% c) 20-50% d) 1 – 2%

6) non coding SNPs change the amount of _____:

a) Amino acids b) Coding region c) Proteins d) All of these

8) _____ SNPs mean change in amino acid sequence?

a) Coding b) Non_ coding c) General d) Linked

9) Variability among humans is due to a difference in_____ of the genomic sequence:

a) 0.1% b) O.5% c) 1.5% d) 9.5%

12) VNTRs are ___ to _____ base pairs long:

a) 5 to > 8 b) 8 to > 50 c) 1 to > 8 d) 1 to > 50

14) In humans,_____ percent bases are same:

a) 20.9% b) 40.9% c) 60.9% d) 99.9%

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17)Most AFLP markers are :

a) Heterozygous b) Homozygous c) highly locus-specific d) Both a and c

18) RFLP probe is a labeled _____sequence that hybridizes with one or more fragments of the digested _____sample after they were separated by gel electrophoresis:

a) DNA, RNA b) DNA, DNA c) RNA, DNA d) RNA, RNA

19) Genomic DNA digested with :

a) Probe b) restriction enzymes c) Complementary DNA d) RNA polymerase

22)RFLPs used to determine disease status like:

a) Huntington b) Cystic fibrosis c) Sickle cell anemia d) All of these

23) "these Shows variations in length between individuals " this statement referred to which option;

a) RFLPs b) VNTRs c) SNPs d) STRs

24) The size of VNT repeat is about ____ to few tens of base pairs long:

a) 5 b) 6 c) 7 d) 9

26) CSF1PO marker has _____ alleles?

a) 7 b) 8. c) 10 d) 11

27) PCR based marker with ____base pairs:

a) 5-10. b) 10-11. c) 10-12 d) 12-20.

28)in how many versions SNP is distributed?

a) 2 b) 4 c) 10 d) 12

30) Genome of each individual contains distinct _ __pattern:

a) SNP. b) RFlPs. c) STRs d) VNTRs

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