Lecture 6

1.Assume that black fur in cats is due to the X- linked recessive gene b, whereas its dominant allele B produces yellow fur. A Bb heterozygote is a mosaic called "calico." A mating between a black male and a calico female occurred. Give the phenotypes of the offspring.
A. calico females and yellow males
B. all calico regardless of sex
C. calico females, black females, yellow males, and black males
D. calico females, yellow females, black males, and yellow males
E. all black regardless of sex
Ans: C

2.What is the blood type of individuals who cannot add the terminal sugar to the H substance?
A. Bombay phenotype
B. AB
C. A
D. B
E. O
Ans: E

3.In a mating between individuals with the genotypes IAi × IBi, what percentage of the offspring are expected to have the O blood type?
A. 25%
B. 75%
C. 50%
D. 100%
E. 0%
Ans: A

4.In Mendel's peas, yellow seeds are dominant to green. A pure-breeding yellow plant is crossed with a pure-breeding green plant. All of the offspring are yellow. If one of these yellow offspring is crossed with a green plant, what will be the expected proportion of plants with green seeds in the next generation?
A. 0%
B. 25%
C. 50%
D. 75%
E. 100%
Ans: C

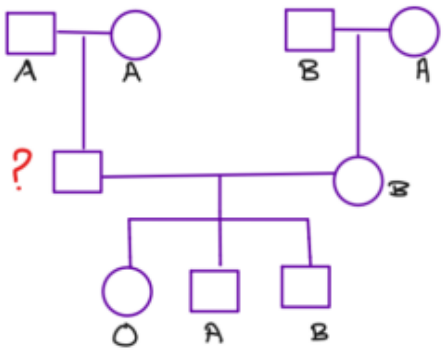
5,The R locus determines flower color in a new plant species. Plants that are genotype RR have red flowers, and plants that are rr have white flowers. However, Rr plants have pink flowers. What type of inheritance does this demonstrate for flower color in these plants?
A. complete dominance
B. incomplete dominance
C. codominance
D. complementation
E. lethal alleles
Ans: B

6.Interactions among the human ABO blood group alleles involve _____ and ____
A. codominance; complete dominance
B. codominance; incomplete dominance
C. complete dominance; incomplete dominance
D. epistasis; complementation
E. continuous variation; environmental variation
Ans: A

7.In humans, blood types A and B are codominant to each other and each is dominant to O. What blood types are possible among the offspring of a couple of blood types AB and Ai?
A. A, B, AB, and O
B. A, B, and AB only
C. A and B only
D. A, B, and O only
E. A and AB only
Ans: B

8.A mother with blood type A has a child with blood type AB. Give all possible blood types for the father of this child.
A. O
B. B, AB
C. A, AB
D. A, B, O
E. A, B, AB, O
Ans: B

9.What is the blood type for the unknown person?
Answer: A



Lecture 7 +8

1.A recessive allele in tigers causes the white tiger. If two normally pigmented tigers are mated and produce a white offspring, what percentage of their offspring would be expected to have normal pigmentation?
A. 25%
B. 50%
C. about 66%
D. 75%
E. about 90%

ANS : D

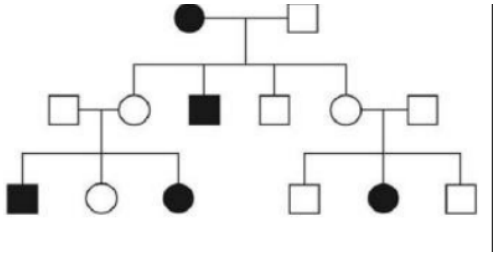
2.Polydactyly is expressed when an individual has extra fingers and/or toes. Assume that a man with six fingers on each hand and six toes on each foot marries a woman with a normal number of digits. Having extra digits is caused by a dominant allele. The couple has a son with normal hands and feet, but the couple's second child has extra digits. What is the probability that their next child will have polydactyly?
A. 1/32
B. 1/8
C. 7/16
D. ½
E. ¾
Ans: D

3.Tightly curled or wooly hair is caused by a dominant gene in humans. If a heterozygous curly-haired person marries a person with straight hair, what percentage of their offspring would be expected to have straight hair?
A. 25% curly
B. 50% straight
C. 75% curly
D. 100% straight
E. It is impossible to predict the outcome.
Ans: B

4.A recessive gene for red- green color blindness is located on the X chromosome in humans. Assume that a woman with normal vision (her father is color blind) marries a color- blind male. What is the likelihood that this couple's first son will be color blind?
A. 75%
B. 0%
C. 50%
D. 100%
E. 25%
Ans: E

5.One form of hemophilia is caused by a sex- linked recessive gene. Assume that a man with hemophilia marries a phenotypically normal woman whose father had hemophilia. What is the probability that their baby is a daughter and affected with hemophilia?
A. ¼
B. 1/8
C. ½
D. 1/16
E. ¾
Ans: A

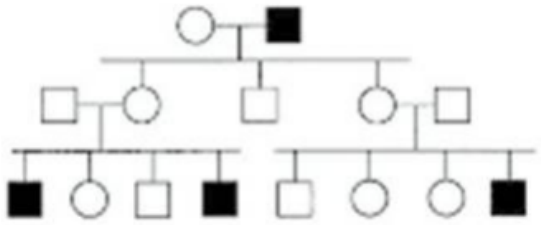
6. The accompanying figure is a pedigree of a fairly common human hereditary trait. Given that one gene pair is involved, what is the inheritance pattern of the trait?
A. X- linked dominant
B. X- linked recessive
C. Epistasis
D. autosomal recessive
E. autosomal dominant
ANS: D



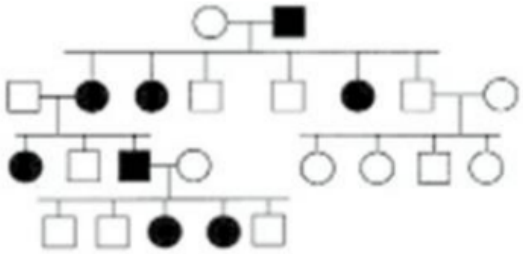
7.Which of the following statements below is false?
A. Normally in humans, a male that is carrying an X- linked dominant trait will pass it to all his daughters.
B. Normally in humans, females are carriers of X- linked recessive traits if they are heterozygous.
C. At meiosis I, the X and Y chromosomes line up as if they were homologs.
D. Normally in humans, all the sons of a female homozygous for an X- linked recessive gene will inherit that trait.
E. Normally in humans, all the sons of a male showing an X- linked phenotype will inherit the trait.
Ans: E

8.Males with one copy of an X-linked gene are said to be _____ for that gene.
A. Homozygous
B. Heteroallelic
C. Heterozygous
D. Hemizygous
E. Deficient
Ans: D

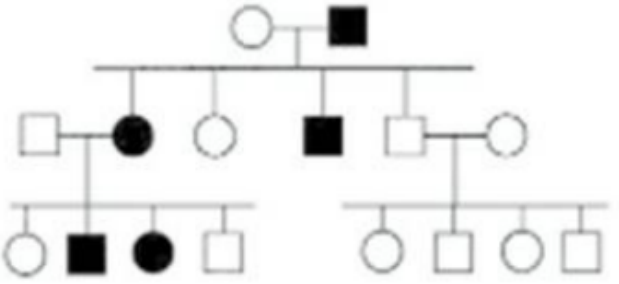
9.In the following pedigree, the indicated trait is caused by which type of allele?
Assume the trait is fully penetrant and not gender limited.
A. autosomal recessive
B. autosomal dominant
C. X-linked recessive
D. X-linked dominant
E. Y-linked
ANS: C



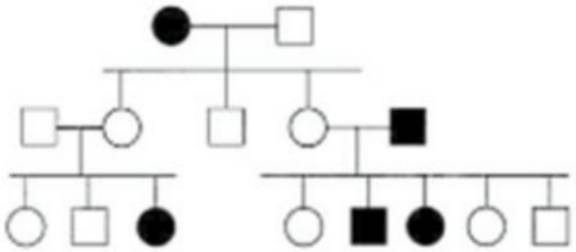
10.In the following pedigree, the indicated trait is caused by which type of allele?
Assume the trait is fully penetrant.
A. autosomal recessive
B. Y-linked dominant
C. X-linked recessive
D. X-linked dominant
E. Y-linked recessive
ANS : D



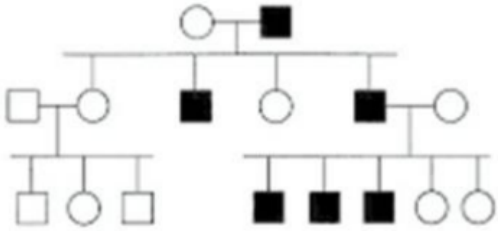
11.In the following pedigree, the indicated trait is caused by which type of allele?
Assume the trait is fully penetrant.
A. autosomal recessive
B. autosomal dominant
C. X-linked recessive
D. X-linked dominant
E. Y-linked
ANS : B



12.In the following pedigree, the indicated trait could be caused by which type of allele?
A. autosomal recessive
B. autosomal dominant with reduced penetrance.
C. X-linked recessive
D. X-linked dominant
E. Two of the above
ANS : E



13.In the following pedigree, the indicated trait is caused by what type of allele? Assume the trait is fully penetrant and not gender limited.
A. autosomal recessive
B. autosomal dominant
C. X-linked recessive
D. X-linked dominant
E. Y-linked
ANS : E



14.Genes come in different versions called:
A. alleles.
B. loci.
C. genotypes.
D. chromosomes.
E. genomes.
Ans: A

15.Freckles are caused by a dominant allele. A man has freckles but one of his parents does not have freckles. What is the man's genotype?
A. homozygous dominant
B. homozygous recessive
C. heterozygous
D. heterologous
E. Homologous
Ans: C

16.A phenotypically normal man has phenotypically normal parents but he has a sister who has cystic fibrosis caused by a recessive mutant allele. What is the probability that the man is heterozygous for the cystic fibrosis allele?
A. 1/4
B. 1/2
C. ¾
D. 2/3
E. 1/3
Ans: D

17.Red-green color blindness is X-linked recessive. A woman with normal color vision has a father who is color blind. The woman has a child with a man with normal color vision. Which phenotype is NOT expected?
A. a color-blind female
B. a color-blind male
C. a noncolor-blind female
D. a noncolor-blind male
E. a color-blind male or a color-blind female
Ans: A

18.Which description of a Y-linked trait in humans is CORRECT?
A. All the sons of an affected father will be affected with the trait.
B. Half the sons of a mother whose father was affected with the trait will be affected.
C. Half the sons of an affected father will not be affected with the trait and the other half will be infertile.
D. All the daughters of an affected father will be phenotypically normal but half of their own sons will be affected with the trait.
E. The parents of an affected man likely were both phenotypically normal.
Ans: A

19.Which statement is INCORRECT concerning an X-linked recessive trait in humans
A. An affected man often has phenotypically normal parents.
B. All the sons of an affected woman will be expected to be affected.
C. An affected woman almost always has an affected mother.
D. An affected man usually has a mother who carries the recessive allele.
E. A phenotypically normal woman whose father was affected is likely to be heterozygous for the condition.
Ans: C

20.The clinical features of patients with Marfan syndrome are caused by unusually stretchable connective tissue. The most observed features in Marfan syndrome affect the eye, the skeleton, and the cardiovascular system. This is an example of:
A. Allelic heterogeneity
B. Pleiotropy
C. Anticipation
D. Penetrance
E. Locus heterogeneity
Answer: B

21.Pathogenic mutations in TBX5 cause Holt-Oram syndrome which includes cardiovascular (atrial septal defect, hypoplastic left heart syndrome), chest (Absent pectoralis major muscle) and skeletal anomalies (vertebral anomalies, triphalangeal thumb and carpal bone anomalies). The TBX5 phenotypic effect is related to which concept:
A. Reduced penetrance
B. Sex limited.
C. Pleiotropy
D. Multifactorial
E. Genetic heterogeneity
Answer: C

22.cystic fibrosis having more than one phenotypic effect, what is this called?
Answer: Pleiotropy

23.Expressivity can be described as:
A. One mutant gene can cause multiple phenotypic effects.
B. The degree to which a gene is expressed depends on other genetic or environmental factors.
C. All or none expression of a mutant gene.
Answer: B

24. Suppose there's an X-linked recessive disease, if the mother has the disease, while the father doesn't, what's the chance that they'll have an affected female?
A. 25%
B. 50%
C. 75%
D. Zero
Answer: D

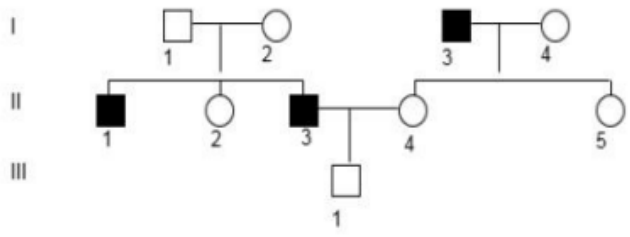
25.Which of the following is true about Huntington disease?
Answer: Autosomal dominant

26.Which of the following is true about Myotonic dystrophy?
Answer: Autosomal dominant

27.A question talking about mild symptoms Vs. severe symptoms for the same disease?
Answer: Variable expressivity

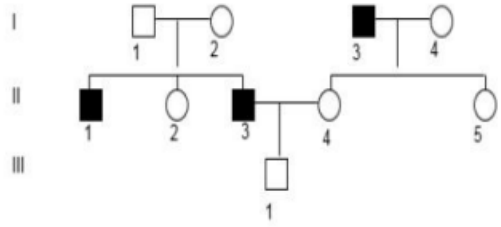
28.Which of the following is NOT a characteristic of X-linked recessive traits in humans?
A. More males than females are affected.
B. Approximately one-half of the sons of a female carrier are affected.
C. They cannot be passed from father to son.
D. Phenotypically normal daughters of affected men are always carriers.
E. Affected daughters always have an affected mother.
Ans: E

29.Could the characteristic followed in the pedigree below be caused by an autosomal dominant disease? Why or why not?
A. Yes, all individuals fit the autosomal dominant inheritance pattern.
B. No, the offspring of I-1 and I-2 contradict an autosomal dominant inheritance.
C. No, the offspring of I-3 and I-4 contradict an autosomal dominant inheritance.
D. No, the offspring of II-3 and II-4 contradict an aut
E. Yes, the offspring of I-1 and I-2 are consistent with a inheritance pattern.
Ans: B

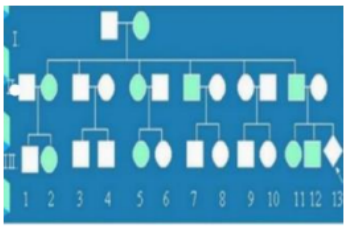


A. Y- linked
B. X- linked dominant
C. Autosomal recessive
D. Autosomal dominant
Ans: C

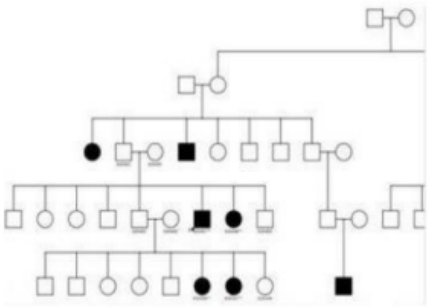
30. In the pedigree below is for an autosomal recessive characteristic, which individuals are definitely heterozygous?
A. I-1, I-2, II-4, II-5, III-1
B. I-1, I-2, I-4, III-1
C. I-1, I-2, II-4, II-5, III-1
D. II-2, II-4, II-5, II-3
E. II-2, II-4, II-5, III-1
Ans: C



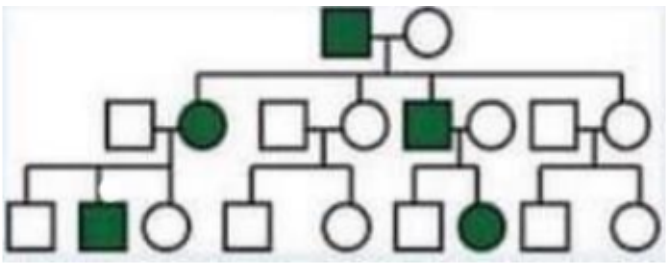
31.The following pedigree shows an:
A. Autosomal recessive disorder
B. Autosomal dominant disorder
C. X-linked recessive disorder
Answer: B



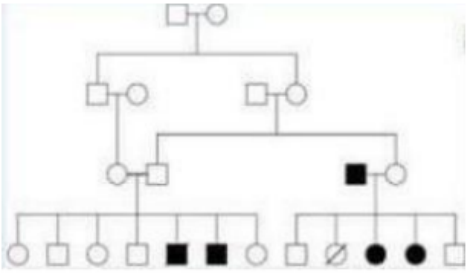
32.What is the most probable mode of inheritance for this pedigree:
A. X- lined recessive
B. Autosomal recessive
C. Autosomal dominant
D. Y- linked
E. X- linked dominant
Answer: B



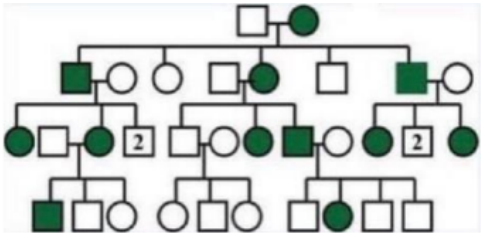
33.What is the most probable mode of inheritance for this pedigree?
A. Autosomal dominant
B. X- lined recessive
C. Y- linked d. X- linked dominant
D. Autosomal recessive
Answer: A



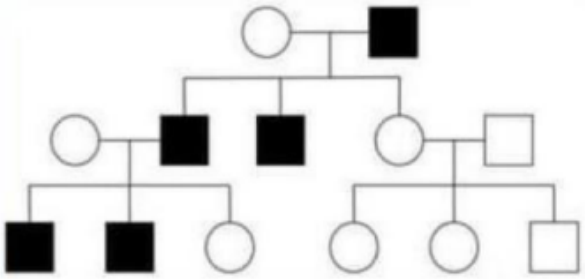
34.What is the most probable mode of inheritance for this pedigree:
A. Autosomal dominant
B. X- linked dominant
C. Autosomal recessive
D. X- lined recessive
E. Y- linked



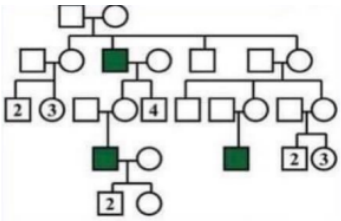
35. What is most probable mode of inheritance for this pedigree:
A. Autosomal recessive
B. X- lined recessive
C. X- linked dominant
D. Y- linked
E. Autosomal dominant
Answer: C



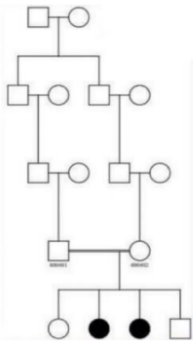
36.What is the most probable mode of inheritance for this pedigree?
A. X- linked dominant
B. Y- linked
C. X- lined recessive
D. Autosomal dominant
E. Autosomal recessive
Answer: B



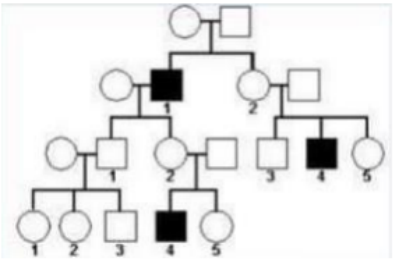
37. What is most probable mode of inheritance for this pedigree:
A. Autosomal recessive
B. X- lined recessive
C. X- linked dominant
D. Y- linked
E. Autosomal dominant
Answer: B



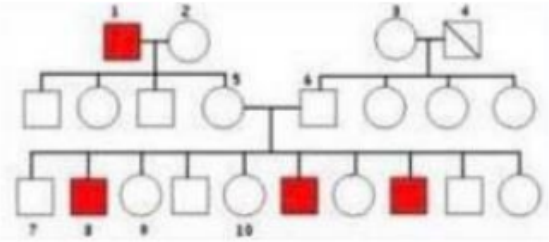
38.What is the most probable mode of inheritance for this pedigree:
A. Autosomal recessive
B. X- lined recessive
C. X- linked dominant
D. Y- linked
E. Autosomal dominant
Answer: A



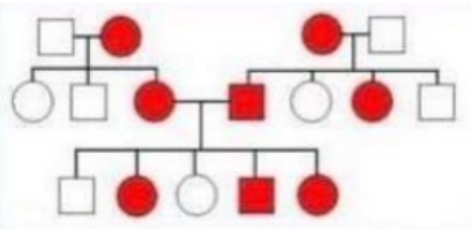
39.What is the most probable mode of inheritance?
A. Autosomal Dominant
B. X-Linked Recessive
C. X-Linked Dominant
D. Autosomal Recessive
E. Y-Linked
Answer: B



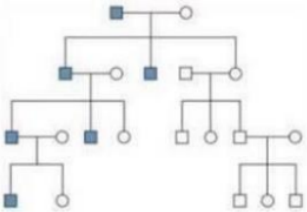
40.What is the most probable mode of inheritance?
A. X-Linked Dominant
B. Autosomal Recessive
C. Y-Linked
D. Autosomal Dominant
E. X-Linked Recessive
Answer: E



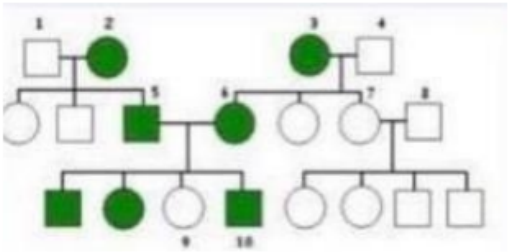
41.What is the most probable mode of inheritance?
A. X-Linked Dominant
B. Autosomal Recessive
C. X-Linked Recessive
D. Y-Linked
E. Autosomal Dominant
Answer: E



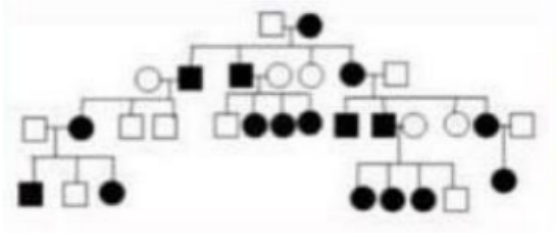
42.What is the most probable mode of inheritance?
A. X-Linked Dominant
B. Autosomal Dominant
C. X-Linked Recessive
D. Autosomal Recessive
E. Y-Linked
Answer: E



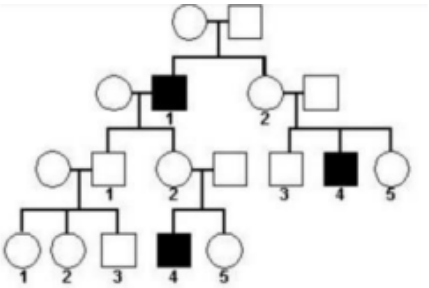
43.What is the most probable mode of inheritance?
A. Autosomal Recessive
B. Y-Linked
C. Autosomal Dominant
D. X-Linked Dominant
E. X-Linked Recessive
Answer: C



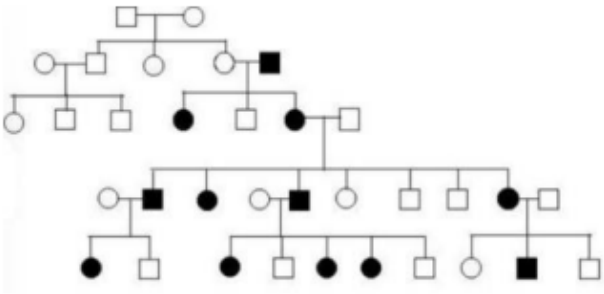
44.What is the most probable mode of inheritance?
A. X-Linked Recessive
B. Autosomal Recessive
C. X-Linked Dominant
D. Y-Linked
E. Autosomal Dominant
Answer: C



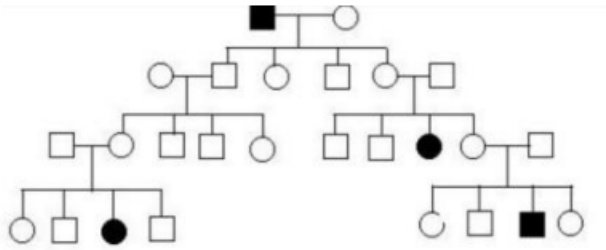
45.What is the most probable mode of inheritance in this pedigree?
A. X- linked recessive
B. Autosomal recessive
C. Autosomal dominant
D. X- Linked dominant
Answer: A



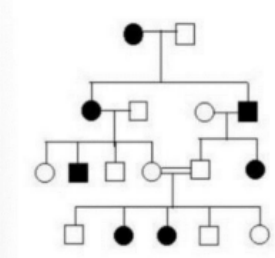
46.What is the most probable mode of inheritance in this pedigree?
A. X- linked recessive
B. Autosomal recessive
C. Autosomal dominant
D. X- Linked dominant
Answer: D



47.What is the most probable mode of inheritance in this pedigree?
A. X- linked recessive
B. Autosomal recessive
C. Autosomal dominant
D. X- Linked dominant
Answer: B



48.What is the most probable mode of inheritance in this pedigree?
A. X – linked recessive
B. Autosomal recessive
C. Autosomal dominant
D. X- Linked dominant
Answer: B



49.Which is false regarding X-linked recessive disorders?
A. A carrier mothers produce all affected sons.
B. Affected fathers produce no affected sons.
C. Affected fathers produce no affected daughters.
D. Affected mothers produce all affected sons.
E. Carrier mothers produce no affected daughters.
Answer: A

50.Pattern baldness, moustaches and beard in human males are examples of:
(Maybe not included)
A. Autosomal recessive traits
B. Sex-influenced traits
C. Sex-linked traits
Answer: B

51. Vitamin D deficiency is:
Answer: X - linked dominant
52. Duchenne muscular dystrophy-DMD is:
Answer: X - linked recessive
53. Hemophilia is:
Answer: X - linked recessive
54.Color blindness is:
Answer: X - linked recessive

Done By Layan Daoud