Genetics

1. Down's syndrome is caused by an extra copy of cshromosome no 21. What percentage of offspring produced by an affected mother and a normal father would be affected by this disorder? (2003)

1) 100% 2) 75% 3)50% 4)25%

2. Which one of the following conditions though harmful in itself, is also potential savior from a mosquito borne infectious disease? (2003)

1) Thalassaemia 2) Sickle cell anaemia 3) Pernicious anaemia 4) Leukaemia

3. Pattern baldness in human males is an example of (2003)

1) Sexlinked traits 2) Sex limited traits 3) Sex influenced traits 4) Sex determining traits

4. Lack of independent assortment of two genes A and B in fruit fly drosophila is due to (2004)

1) Repulsion 2) Recombination 3) Linkage 4) Crossing over

5. A male human is heterozygous for autosomal genes A and B and is also hemizygous for hemophilic gene h. what proportionof his sperms will be abh? (2004)

1)1/8 2)1/32 3)1/16 4)1/4

6. The recessive genes located on X-chromosome of humans are always (2004)

1) Lethal 2) Sub-lethal 3) Expressed in males 4) Expressed in females

7. A normal woman whose father was colour –blind is married to a normal man. The sons would be (2004)

1)75% colour –blind 2)50% colour –blind 3) All normal 4) All colour-blind

8. A woman with normal vision, but whose father was colour blind, marries a colour blind man. Suppose that the fourth child of this couple was a boy. This boy (2005)

1) May be colourblind or may be of normal vision

2) Must be colour blind

3) Must have normal colour vision

4) Will be partially colour blind since he is herozygous for the colourblind mutant allele.

9. Which of the following is not a hereditary disease? (2005)

1) Cystic fibrosis 2) Thalassaemia 3) Haemophilia 4) Cretinism

10. Haemophilia is more commonly seen in human males than in human females because (2005)

1) A greter proportion of girls die in infancy
2) This disease is due to a Y-linked recessive mutation
3) This disease is due to a X-linked recessive mutation
4) This disease is due to a X-linked dominant mutation

11. A woman with 47 chromosomes due to three copies of chromosome 21 is characterized by (2005)

1) Super femaleness 2) Triploidy 3) Turner's syndrome 4) Down's syndrome

12. A man and a woman, who do not show any apparent signs of a certain inherited disease, have seven children (2 daughters and 5 sons). Three of the sons suffer from the given disease but none of the daughters affected. Which of the following mode of inheritence do you suggest for this disease? (2005)

1) Sex-linked dominant 2) Sex-linked recessive

3) Sex-limited recessive 4) Autosomal dominant

13. Which one of the following is an example of polygenic inheritance? (2006)

1) Skin colour in humans 2) Flower colour in Mirabilis Jalapa
3) Production of male honey bee 4) Pod shape in garden pea

14. Sickle cell anaemia has not been eliminated from the African population because (2006)

1) It is controlled by dominant genes 2) It is controlled by recessive genes
3) It is not a fatal disease 4) It provides immunity against malaria

15. Cri-du-chat syndrome in human is caused by the (2006)

1) Trisomy of 21st chromosome

2) Fertilization of an XX egg by a normal Y-bearing sperm

3) Loss of half of the short arm of chromosome 5

4) Loss of half of the long arm of chromosome 5

16. If a colourblind woman marries a normal visioned man , their sons will be (2006)

1) All colourblind

2) All normal visioned

3) One-half colourblind and one –half normal

4) Three –fouths colourblind and one –fourth normal

17. Both sickle cell anaemia and Huntington's chorea are (2006)

1) Virus related diseases 2) Bacteria related diseases
3) Congenital disorders 4) Pollutant induced disorders

18. Inheritance of skin colour in human is an example of (2007)

1) Point mutation 2) Polygenic inheritance

3) Codominance 4) Chromosomal aberration

19. A human male produces sperms with the genotypes AB, Ab, aB and ab pertaining to two diallelic characters in equal proportions. What is the corresponding genotype of this person? (2007)

1) AaBB 2) AABb 3) AABB 4) AaBb

20. Which one of the following conditions in humans is correctly matched with is chromosomal abnormality/linkage? (2008)

1) Erythroblastosis foetalis-X-linked

2) Down's syndrome -44 autosomes+X0

3) Klinefelter's syndrome -44 autosomes +XXY

4) Colour blindness- Y-linked

21. The most popularly knoen blood gropuping is the ABO grouping. It is named ABO and not ABC, because "O" in it refers to having (2009)

1) Overdominance of this type on the genes for A and B types

2) One antibody only- either anti –A or anti –B on the RBCs
3) No antigens A and B on RBCs
4)Other antigens besides A and B on RBCs.

22. Sickle-cell anaemia is (2009)

1) Causedby substitution of valine by glutamic acid in the beta globin chain of haemoglobin

2) Caused by a change in a single base pair of DNA

3) Characterized by elongated sickle like RBCs with a nucleus
4) An autosomal dominant trait

23. Select the incorrect statement from the following (2009)

1) Galactosemia is an inbron error of metabolism

2) Small population size results in random gentic drift in population

3) Baldness is a sex –limited trait

4) Linkage is an exception to the principle of independent assortment in heredity

24. Select the correct statement from the ones given below with respect to dihybrid cross (2010)

1)Tightly linked genes on the same chromosomes show higher recombinations
2)Genes far apart on the same chromosomes show very few recombinations
3)Genes loosely limked on the same chromosomes show similar recombinations
4)Tightly linked genes on the same chromosomes show very few recombinations

25. ABO blood groups in humans are controlled by the gene I. it has three alleles- I^A,I^B and i . Since there are three different alleles, six different genotypes are possible. How many phenotypes occur? (2010 P&M)

1)3 2)1 3)4 4)2

26. Which one of the following conditions correctly describes the manner of determining the sex? (2011)

1)Homozygous sex chromosomes (ZZ) determine female sex in birds
2)X0 type of sex chromosomes determine male sex in grasshopper
3)XO condition in humans as found in turner's syndrome,determines female sex
4)Homozygous sex chromosomes (XX) produce male in drosophila

27. Mutations can be induced with (2011)

1) Infrared radiations 2) IAA 3) Ethylene 4) Gamma radiations

28. Which one of the following conditions of the zygotic cell would lead to the birth of a normal human female child? (2011 M)

1) Two X chromosomes 2) Only one Y chromosome
3) Only one X chromosome 4) One X and one Y chromosome

29. A normal-visioned man whose father was colour – blind marries a woman whose father was also colour-blind. They have their first child as a daughter. What are the chances that this child would be colour –blind? (2012)

1)100% 2)0% 3)25% 4)50%

30. In eukaryotic cell transcription, RNA splicing and RNA capping take place inside the (2010M)

1) Ribosomes 2) Nucleus 3) Dictyosomes 4) ER

31. The lac operon consists of (2010M)

1) Four regulatory genes only 2) One regulatory gene and three structural genes

3) two regulatory gene and two structural genes

4) Three regulatory gene and three structural genes

32. What are the structures called that give an appearance as 'beads on string' in the chromosomes when viewed under electron microscope? (2011)

1) Genes 2) Nucleotides 3) nucleosomes 4) base pairs

33. In history of biology, human genome project led to the development of (2011M)

1) Biotechnology 2) Biomonitoring 3) Bioinformatics 4) Biosystematics

34. Removal of RNA polymerses lll from nucleoplasm will affect the synthesis of (2012)

1) tRNA 2)hnRNA 3)mRNA 4) rRNA

35. Which one of the following is not a part of a transcription unit in DNA? (2012)

1) The inducer 2) A terminator 3) A promoter 4) The structural gene

36. Removal of intron and joining of exons in a defined order during transcription is called (2012)

1) Looping 2) inducing 3) slicing 4) splicing

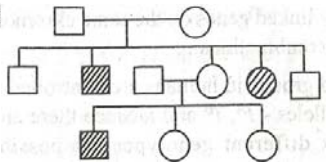
37.Read the following four ststements (A-D) (2012 M)

(A)in transcription ,adenosine pairs with uracil
(B) Regulation of lac operon by repressor is referred to as positive regulation
(C) the human genome has approximately 50,000 genes.
(D) Haemophilia is a sex-linked recessive disease.

How many of the above statements are right?

1) Two 2) three 3) Four 4) one

38. Study the pedigree chart given below. What does it show?



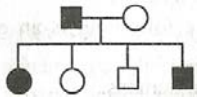
1) Inheritance of a condition like phenylketonuria as an autosomal recessive trait.

2) The pedigree chart is wrong as this is not possible.

3) Inheritance of a recessive sex-linked disease like haemophilia.

4) Inheritance of a sex-linked inborn error of metabolism like phenylketonuria.

39. Study the pedigree chart of a certain family given below and select the correct conclusion which can be drawn for the character.



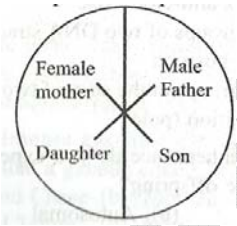
1) The female parent is heterozygous.

2) The parents could not have had a normal daughter for this character.

3) The trait under study could not be colour blindness.

4) The male parent is homozygous dominant.

40.Represented below is the inheritance pattern of a certain type of trait in humans. Which one of the following conditions could be an example of this pattern?



1) Phenylketonuria 2) Sickle cell anaemia

3) Haemopiilia 4) Thalassemia.

key

1)3	2)2	3)3	4)3	5)1	6)3	7)2	8)1	9)4	10)3
11)4	12)2	13)1	14)4	15)3	16)1	17)3	18)2	19)4	20)3
21)3	22)2	23)3	24)4	25)3	26)2	27)4	28)1	29)2	30)2
31)3	32)3	33)3	34)1	35)1	36)4	37)1	38) 1	39) 1	40) 3