CDEV 2nd edition Rathus Test Bank

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TRUE/FALSE

1 : Color blindness is a sex-linked abnormality.
A : true
B : false

Correct Answer : A

2 : Adoption studies in which children are separated from their natural parents at an early age and reared by adoptive parents provide special opportunities for sorting out nature and nurture.
A : true
B : false

Correct Answer : A

3 : Dizygotic (DZ) twins run in families.
A : true
B : false

Correct Answer : A

4 : Children suffering from Huntingtons disease (HD) can be placed on a diet that is low in phenylalanine within three to six weeks of birth. Following this diet helps them achieve normal development.
A : true
B : false

Correct Answer : B

5 : Amniocentesis was once routinely recommended for women who become pregnant past the age of 40.
A : true
B : false

Correct Answer : A

6 : Amniocentesis is a procedure used in abortion.
A : true
B : false

Correct Answer : B

7 : Sebaceous glands cause a developing organism to grow arms or wings, skin or scales.
A : true
B : false

Correct Answer : B

8 : Typical human cells contain 50 chromosomes organized into 25 pairs.
A : true
B : false

Correct Answer : B

9 : Chorionic villus sampling (CVS) is similar to amniocentesis but is carried out between the 14th and 16th week of pregnancy.
A : true
B : false

Correct Answer : B

10 : Meiosis is responsible for the production of sperm and ova.
A : true
B : false

Correct Answer : A

11 : Neural tube defects cause an elevation in the alpha-fetoprotein (AFP) level in the mothers blood.
A : true
B : false

Correct Answer : A

12 : Monozygotic (MZ) twins are known as fraternal twins.
A : true
B : false

Correct Answer : B

13 : When children who are reared by adoptive parents are similar to their natural parents in a trait, a powerful argument is made for a genetic role in the appearance of that trait.
A : true
B : false

Correct Answer : A

14 : Children that suffer from phenylketonuria (PKU) can be cured by placing them on diets high in the enzyme phenylalanine.
A : true
B : false

Correct Answer : B

15 : In amniocentesis, the health professional uses a syringe to suck out some threadlike projections called villi from the outer membrane that envelops the amniotic sac and fetus.
A : true
B : false

Correct Answer : B

16 : Ultrasound is used to guide the syringe in amniocentesis and chorionic villus sampling (CVS) by determining the position of the fetus.
A : true
B : false

Correct Answer : A

17 : The probability of having a child with Downs syndrome increases with the age of the parents.
A : true
B : false

Correct Answer : A

MULTIPLE CHOICE

18 : Individuals with Klinefelter syndrome produce:
A : less estrogen than normal males.
B : less testosterone than normal males.
C : less adenine than normal males.
D : less thymine than normal males.

Correct Answer : B

19 : Twenty-year-old Jack is extremely tall and has very thick facial hair. Most of his male secondary sex characteristics are also more pronounced than men of his age. In this scenario, Jack is most likely:
A : an XYY male.
B : to be diagnosed with Klinefelter syndrome.
C : an XXY male.
D : to be diagnosed with Downs syndrome.

Correct Answer : A

20 : Most victims of _____ die of respiratory infections in their 20s.
A : Tay-Sachs disease
B : cystic fibrosis
C : Turner syndrome
D : Klinefelter syndrome

Correct Answer : B

21 : Which of the following is true of sickle-cell anemia?
A : It is typically treated with testosterone replacement therapy.
B : Children this problem cannot metabolize an amino acid called phenylalanine.
C : It leads to the obstruction of small blood vessels and decreased oxygen supply.
D : Girls with this problem are shorter than average and infertile.

Correct Answer : C

22 : Which of the following happens during mitosis?
A : Strands of deoxyribonucleic acid (DNA) break apart.
B : Adenine combines with its appropriate partner, cytosine.
C : Sperm and ova cells are created.
D : 23 chromosomes are created.

Correct Answer : A

23 : According to a study by Fellman (2013), if a woman is a twin, then:
A : she is more likely to develop chromosomal abnormalities.
B : the chances of her becoming pregnant decreases.
C : she is likely to be a healthy mother.
D : she is likely to bear twins.

Correct Answer : D

24 : Which of the following is true of Downs syndrome?
A : It is usually caused by a defect in the sex chromosomes of an individual.
B : The symptoms of Downs syndrome are similar to those of sickle-cell anemia.
C : It is caused by a sexually transmitted infection (STI) during conception.
D : The probability of having a child with Downs syndrome increases with the age of the parents.

Correct Answer : D

25 : Rico is a man who has enlarged breasts and suffers from mild mental retardation. He has a problem learning languages, and his body produces less of the male sex hormone testosterone than normal males. Rico is most likely suffering from:
A : Klinefelter syndrome.
B : Tay-Sachs disease.
C : Turner syndrome.
D : Downs syndrome.

Correct Answer : A

26 : If an individual gets a recessive allele for eye color from both parents, the:
A : gender of the child will determine if that trait is shown.
B : recessive trait will develop in the child.
C : recessive trait will develop 50% of the time.
D : recessive trait will be suppressed and the dominant trait will be expressed.

Correct Answer : B

27 : Polygenic traits are those that are:
A : developed during adolescence.
B : transmitted by the mother.
C : uncommon in humans.
D : determined by several pairs of genes.

Correct Answer : D

28 : Which of the following pairs of bases is present in the rungs of the ladder-like structure of deoxyribonucleic acid (DNA)?
A : Cytosine with guanine
B : Rhodamine with biotin
C : Diaminopurine with ribozyme
D : Serine with tyrosine

Correct Answer : A

29 : Which of the following is a symptom of cystic fibrosis?
A : It leads to uncontrollable muscle movements and changes in personality.
B : It leads to the excessive production of thick mucus that clogs the pancreas and lungs.
C : It causes red blood cells to clump together leading to obstruction of small blood vessels and decrease in oxygen supply.
D : It causes the central nervous system to degenerate, resulting in death.

Correct Answer : B

30 : Cystic fibrosis is caused by a(n):
A : sex-linked abnormality.
B : abnormality in the 21st pair of chromosomes.
C : recessive gene.
D : single segment found only on the X chromosome.

Correct Answer : C

31 : Which of the following individuals is most likely to have Tay-Sachs disease?
A : Avner, a 4-year-old child of Jewish descent
B : Connard, a 55-year-old African American
C : Shaina, a 17-year-old Asian American
D : Mateo, a 20-year-old Hispanic male student

Correct Answer : A

32 : Which of the following illnesses causes a degeneration of the central nervous system?
A : Tay-Sachs disease
B : Cystic fibrosis
C : Turner syndrome
D : Klinefelter syndrome

Correct Answer : A

33 : Tim, a 27 year old man, has unusually narrow shoulders, low muscle mass, and no facial and body hair. After a consultation, his doctor prescribed testosterone replacement therapy. Tim is most likely suffering from:
A : phenylketonuria (PKU).
B : cystic fibrosis.
C : Klinefelter syndrome.
D : Huntingtons disease (HD).

Correct Answer : C

34 : Humans begin life as a single cell that known as a(n):
A : zygote.
B : gonadotrope.
C : embryo.
D : chromaffin.

Correct Answer : A

35 : Deoxyribonucleic acid (DNA) takes the form of a:
A : single spiral.
B : double helix.
C : sphere.
D : cube.

Correct Answer : B

36 : In the structure of deoxyribonucleic acid (DNA), which of the following bases combine with thymine?
A : Cytosine
B : Adenine
C : Rhodamine
D : Serine

Correct Answer : B

37 : When the effects of both alleles are shown, there is said to be:
A : codominance.
B : preponderance.
C : ascendance.
D : concurrence.

Correct Answer : A

38 : Sickle-cell anemia is caused by a:
A : chromosomal abnormality.
B : single segment found only on the Y chromosome.
C : recessive gene.
D : decrease in estrogen levels.

Correct Answer : C

39 : Downs syndrome is caused:
A : due to alcohol abuse by the mother at the time of conception.
B : by sex-linked chromosomal abnormalities.
C : by an extra chromosome on the 21st pair.
D : due to drug abuse by the mother during pregnancy.

Correct Answer : C

40 : The typical sex chromosome pattern for females is _____.
A : XX
B : XYY
C : XY
D : XXY

Correct Answer : A

41 : After mitosis, the genetic code is identical in new cells unless_____occur through radiation or other environmental influences.
A : reductions
B : expulsions

C : conceptions
D : mutations

Correct Answer : D

42 : _____are problems that stem from the interaction of heredity and environmental factors.
A : Multifactorial problems
B : Cognitive problems
C : Horizon problems
D : Coronal problems

Correct Answer : A

43 : Girls with Turner syndrome:
A : possess more thymine than cytosine.
B : are taller than average.
C : produce little estrogen.
D : are more likely to give birth to twins.

Correct Answer : C

44 : _____is the process in which the double helix of deoxyribonucleic acid (DNA) duplicates.
A : Amniocentesis
B : Mitosis
C : Meiosis
D : Mutation

Correct Answer : B

45 : _____ is a method to detect prenatal genetic abnormalities that samples the membrane enveloping the amniotic sac and fetus:
A : Ultrasound
B : Chorionic villus sampling
C : Sonogram
D : Alpha-fetoprotein assay

Correct Answer : B

46 : Which of the following describes the function of genes?
A : They regulate the development of traits.
B : They prevent foreign particles from entering the body.
C : They work together with lutein to influence development.
D : They transfer oxygen from the bloodstream to other parts of the body.

Correct Answer : A

47 : The field of biology that studies heredity is called _____.
A : etiology.
B : ecology.
C : genetics.
D : numismatics.

Correct Answer : C

48 : Which of the following is a characteristic of supermales?
A : They are somewhat taller than average.
B : Their facial hair growth is minimal when compared to XYY males.
C : They suffer from gynecomastia.
D : They are more likely to be impotent.

Correct Answer : A

49 : The individual who would be most likely to develop sickle-cell anemia is a(n):
A : European American.
B : Native American.
C : African American.
D : Asian American.

Correct Answer : C

50 : Matt is a 36 year old male. In the past one year, he noticed that his limbs sometimes moved on their own and he also started having trouble remembering things along with doing simple calculations. Matts father and grandfather were also known to have faced similar problems during their adulthood. Matt is most likely suffering from:
A : phenylketonuria (PKU).
B : cystic fibrosis.
C : Turner syndrome.
D : Huntingtons disease (HD).

Correct Answer : D

51 : _____ is used to detect neural tube defects such as spina bifida and certain chromosomal abnormalities.
A : Artificial insemination
B : Sonogram
C : Endometriosis
D : Alpha-fetoprotein (AFP) assay

Correct Answer : D

52 : Jill bears the genetic code for Von Willebrand disease, but she has never developed the illness herself. Jill would be considered:
A : a carrier of the recessive gene that causes the disease.
B : susceptible to the disease after adolescence.
C : an acceptor of the recessive gene that causes the disease.
D : susceptible to the disease at late adulthood.

Correct Answer : A

53 : When both of the alleles for a trait are the same, the person is said to be _____ for that trait.
A : monozygotic
B : dizygotic
C : homozygous

D : heterozygous

Correct Answer : C

54 : Dizygotic (DZ) twins share_____percent of their genes.
A : 100
B : 75
C : 50
D : 25

Correct Answer : C

55 : Chromosomes contain thousands of segments called:
A : nuclei.
B : nodes.
C : capillaries.
D : genes.

Correct Answer : D

56 : According to a study by Fellman (2013), the chances of twins:
A : increase when a woman conceives before she is 21.
B : increase with parental age.
C : decrease with the number of times couples have sex before conception.
D : decrease with the use of fertility drugs.

Correct Answer : B

57 : Monozygotic (MZ) twins share_____percent of their genes.
A : 100
B : 75
C : 50
D : 25

Correct Answer : A

58 : Most victims of _____ suffer from excessive production of thick mucus that clogs pancreas and lungs.
A : Tay-Sachs disease
B : cystic fibrosis
C : Turner syndrome
D : Klinefelter syndrome

Correct Answer : B

59 : The enzyme disorder_____is transmitted by a recessive gene and affects about 1 child in 8,000.
A : Tay-Sachs disease
B : Duchenne muscular dystrophy
C : hemophilia
D : phenylketonuria

Correct Answer : D

60 : The determination of a childs sex depends on the:
A : presence of teratogens at the time of conception.
B : sex chromosome pair from the end of every autosome.
C : presence of teratogens at the time of ovulation.
D : sex chromosome received from either parent.

Correct Answer : D

61 : Which of the following is considered a multifactorial problem?
A : Cystic fibrosis
B : Downs syndrome
C : Diabetes mellitus
D : XYY syndrome

Correct Answer : C

62 : If adopted children show more of a similarity in characteristics to their natural parents than to their adoptive parents, it can be concluded that:
A : the genetic characteristics of the children change over time.
B : heredity is solely responsible for how a child grows.
C : the environment is solely responsible in the development of those characteristics.
D : genetics play a role in the development of those characteristics.

Correct Answer : D

63 : The typical sex chromosome pattern for males is _____.
A : XX
B : XYY
C : XY
D : XXY

Correct Answer : C

64 : Twins that derive from a single zygote that has split into two are called:
A : monozygotic (MZ) twins.
B : non-identical twins.
C : fraternal twins.
D : dizygotic (DZ) twins.

Correct Answer : A

65 : Chromosomes are _____ structures found in cells.
A : rod-shaped
B : circular
C : cone-shaped
D : octagonal

Correct Answer : A

66 : According to a study by Fellman (2013), which of the following is true of fertility drugs?
A : They enhance the chances of multiple births.
B : They stop ova from ripening.

C : They should be taken orally and not injected.
D : They suppress the hormone-secretion process.

Correct Answer : A

67 : Daisy has always been unusually short for her age from the time she was a child. She was unable to conceive after marriage and upon visiting a doctor, she was prescribed estrogen replacement therapy. Daisy is most likely suffering from:
A : phenylketonuria (PKU).
B : cystic fibrosis.
C : Turner syndrome.
D : Huntingtons disease (HD).

Correct Answer : C

68 : After meiosis, each new cell nucleus contains _____ chromosomes.
A : 46
B : 35
C : 23
D : 12

Correct Answer : C

69 : Which of the following is true of mutations?
A : Mutations usually occur by chance.
B : Mutations produce sperm and ova cells.
C : Mutations occur through radiation or other environmental influences.
D : Mutations help adenine combine with guanine to form the single spiral structure of deoxyribonucleic acid.

Correct Answer : C

70 : A human zygote contains _____ pairs of autosomes.
A : 46
B : 44
C : 23
D : 22

Correct Answer : D

71 : According to a study in 2014 by Skakkebaek et al., who among the following is most likely to have gynecomastia?
A : Jennifer, a dancer, who has Downs syndrome.
B : Frank, a teacher, who is diagnosed with XYY syndrome.
C : Peter, a fashion designer, who has Klinefelter syndrome.
D : Ria, a gym instructor, who is diagnosed with Turner syndrome.

Correct Answer : C

72 : _____ is a procedure that uses ultrasonic sound waves to create a picture of an embryo or fetus.
A : Artificial insemination
B : Sonogram

C : Endometriosis
D : Alpha-fetoprotein (AFP) assay

Correct Answer : B

73 : _____is a fatal genetic neurologic disorder whose onset is in middle age.
A : Tay-Sachs disease
B : Duchenne muscular dystrophy
C : Hemophilia
D : Huntingtons disease

Correct Answer : D

74 : Each member of a pair of genes is termed a(n) _____.
A : allele
B : zygote
C : autosome
D : node

Correct Answer : A

75 : According to a study by van Gameren-Oosterom (2013), individuals with Downs syndrome:
A : are unlikely to die from cardiovascular problems by middle age.
B : have no specific characteristic features.
C : show deficits in cognitive development.
D : are likely to have only 46 chromosomes.

Correct Answer : C

ESSAY

76 : What were the conclusions of kinship studies?

Correct Answer : Answers will vary. Researchers study the distribution of a trait or behavior among relatives who differ in degree of genetic closeness. The more closely people are related, the more genes they have in common. Parents and children have a 50% overlap in their genetic endowments, and so do siblings (brothers and sisters). Aunts and uncles have a 25% overlap with nieces and nephews, as do grandparents with grandchildren. First cousins share 12.5% of their genetic endowment. If genes are implicated in a trait, people who are more closely related should be more likely to share it.

77 : Why is amniocentesis carried out on pregnant women?

Correct Answer : Answers will vary. Amniocentesis is usually performed on the mother at 14–16 weeks after conception, although many physicians now perform the procedure earlier ("early amniocentesis"). In this fetal-screening method, the health professional uses a syringe (needle) to withdraw fluid from the amniotic sac. The fluid contains cells that are sloughed off by the fetus. The cells are separated from the amniotic fluid, grown in a culture, and then examined microscopically for genetic and chromosomal abnormalities.

78 : Discuss the cause and symptom of Huntingtons disease (HD).

Correct Answer : Answers will vary. Huntington's disease (HD) is a fatal, progressive degenerative disorder and a dominant trait, affecting approximately 1 American in 18,000. Physical symptoms include uncontrollable muscle movements. Psychological symptoms include loss of intellectual functioning and personality change (van Dujin et al., 2014). Because the onset of HD is delayed until middle adulthood, many individuals with the defect have borne children only to discover years later that they and possibly half their offspring will inevitably develop it. Medicines can help deal with some symptoms.

79 : Distinguish between Klinefelter syndrome and Turner syndrome.

Correct Answer : Answers will vary. Approximately 1 male in 500 has Klinefelter syndrome, which is caused by an extra X sex chromosome (an XXY sex chromosomal pattern). XXY males produce less of the male sex hormone testosterone than normal males. As a result, male primary and secondary sex characteristics— such as the testes, deepening of the voice, musculature, and the male pattern of body hair—do not develop properly. XXY males usually have enlarged breasts (gynecomastia) and are usually mildly mentally retarded, particularly in language skills. XXY males are typically treated with testosterone replacement therapy, which can foster growth of sex characteristics and elevate the mood, but they remain infertile.Approximately 1 girl in 2,500 has a single X sex chromosome and as a result develops Turner syndrome. The external genitals of such girls are normal, but their ovaries are poorly developed and they produce little estrogen. Girls with this problem are shorter than average and infertile. Researchers have connected a specific pattern of cognitive deficits with low estrogen levels: problems in visual–spatial skills, mathematics, and nonverbal memory.

80 : How would one identify a person with Downs syndrome?

Correct Answer : Answers will vary. Down's syndrome is usually caused by an extra chromosome on the 21st pair, resulting in 47 chromosomes. The probability of having a child with Down's syndrome increases with the age of the parents. People with Down's syndrome have characteristic features that include a rounded face, a protruding tongue, a broad, flat nose, and a sloping fold of skin over the inner corners of the eyes. They show deficits in cognitive development and motor development and usually die from cardiovascular problems by middle age, although modern medicine has extended life appreciably.

81 : Discuss the process of mitosis.

Correct Answer : Answers will vary. In mitosis, strands of DNA break apart, or "unzip." The double helix then duplicates. The DNA forms two camps on either side of the cell, and then the cell divides. Each incomplete rung combines with the appropriate "partner" (i.e., G and C, A and T) to form a new complete ladder. The two resulting identical copies of the DNA strand separate when the cell divides; each becomes a member of a newly formed cell.

82 : Distinguish between monozygotic (MZ) twins and dizygotic (DZ) twins.

Correct Answer : Answers will vary. Now and then, a zygote divides into two cells that separate so that each develops into an individual with the same genetic makeup. These individuals are identical twins, or monozygotic (MZ) twins. If the woman produces two ova in the same month and they are each fertilized by different sperm cells, they develop into fraternal twins, or dizygotic (DZ) twins. DZ twins run in families. If a woman is a twin, if her mother was a twin, or if she has previously borne twins, the chances rise that she will bear twins.

83 : Who are genetic counselors?

Correct Answer : Answers will vary. Genetic counselors compile information about a couple's genetic heritage to explore whether their children might develop genetic abnormalities. Couples who face a high risk of passing along genetic defects to their children sometimes elect to adopt or not have children rather than conceive their own. In addition, prenatal testing can indicate whether the embryo or fetus is carrying genetic abnormalities.

84 : How is chorionic villus sampling (CVS) carried out?

Correct Answer : Answers will vary. Chorionic villus sampling (CVS) is similar to amniocentesis but is carried out between the 9th and 12th week of pregnancy. A small syringe is inserted through the vagina into the uterus and sucks out some threadlike projections (villi) from the outer membrane that envelops the amniotic sac and fetus. Results are available within days. CVS has not been used as frequently as amniocentesis because CVS carries a slightly greater risk of miscarriage.

85 : Discuss the importance of parental blood tests in the discovery of genetic disorders in the infant.

Correct Answer : Answers will vary. Parental blood tests can reveal the presence of genetic disorders such as sickle-cell anemia, Tay-Sachs disease, and cystic fibrosis. The alpha-fetoprotein (AFP) assay is used to detect neural tube defects such as spina bifida and certain chromosomal abnormalities.