

10. Reaching the Age Adolescence

Very Short Answer Type Questions

1. Question

What is the special name of the period of life between childhood and adulthood?

Answer

The period of life between childhood and adulthood is called adolescence.

2. Question

Name another term for 'adolescents'.

Answer

Adolescents are also called teenagers.

3. Question

State the age at which adolescence usually begins and the age up to which it lasts.

Answer

Adolescence begins around the age of 11 and lasts upto 18 or 19 years of age.

4. Question

Which is the most conspicuous change (clear visible change) in boys and girls during puberty?

Answer

The most conspicuous change (clear visible change) in boys and girls during puberty is the sudden increase in height.

5. Question

How does the height of boys and girls change during puberty?

Answer

The long bones of arms and legs elongate and make a person tall.

6. Question

Name one factor on which the height of a person depends.

Answer

The height of a person depends on the genes inherited from parents.

7. Question

A nine year old boy is 120 cm tall. If the present height of boy is 75% of his full height, calculate the full height which the boy will eventually reach at the end of growth period.

Answer

$$\begin{aligned}\text{Calculation for full height (cm)} &= \frac{\text{Present height (cm)}}{\% \text{ of full height at this age}} \times 100 \\ &= \frac{120 \text{ cm}}{75} \times 100 = 160 \text{ cm tall}\end{aligned}$$

8. Question

How do shoulders and chest change in boys during puberty?

Answer

As boys enter in puberty stage, their shoulders become broad and chest become wide.

9. Question

How do hips of girls change during puberty?

Answer

During puberty, the region below the waist becomes wider in girls.

10. Question

What is the other name of 'voice box'?

Answer

Voice box is also known as larynx.

11. Question

Which of the two have a smaller voice box: grown up boys or grown up girls?

Answer

Grown up girls have a smaller voice box than grown up boys.

12. Question

What is the common name of the bulge (or projection) at the front of throat in grown up boys?

Answer

The common name of the bulge (or projection) at the front of throat in grown up boys is Adam's apple.

13. Question

What substance is secreted by sebaceous glands?

Answer

Sebaceous glands secrete oil.

14. Question

Name the time period in one's life when the brain has the greatest capacity for learning.

Answer

Adolescence is a period of time in one's life when the brain has the greatest capacity for learning.

15. Question

Name two glands present in the skin whose increased activity causes pimples and acne.

Answer

Sweat glands and sebaceous glands are present in the skin and causes pimples and acne.

16. Question

What name is given to those sexual characteristic in humans:

(a) which are present in babies at birth?

(b) which develop in mature boys and girls?

Answer

(a) Sexual characteristics which are present in babies at birth are called primary sexual characters.

(b) Sexual characteristics which develop in mature boys and girls are called secondary sexual characters.

17. Question

Name any two glands which function as endocrine glands as well as exocrine glands.

Answer

testes and ovaries function as endocrine glands as well as exocrine glands.

18. Question

What is the other name of ductless glands?

Answer

Endocrine glands are also known as ductless glands.

19. Question

What term is used for the secretion of endocrine glands?

Answer

The secretion of endocrine glands is known as hormones.

20. Question

Name:

(a) female sex hormone, and

(b) male sex hormone.

Answer

(a) Estrogen (b) Testosterone

21. Question

Name the hormone which develops secondary sexual characteristic:

(a) in females (girls).

(b) in males (boys)

Answer

(a) Estrogen (b) Testosterone

22. Question

State the function of male sex hormone 'testosterone'.

Answer

The function of male sex hormone 'testosterone' is to develop secondary sexual characters in the boys.

23. Question

Name the endocrine gland which controls the production of sex hormones 'testosterone' and 'estrogen'.

Answer

The production of sex hormones 'testosterone' and 'estrogen' is under the control of another hormone secreted from an endocrine gland called pituitary gland.

24. Question

What is the name of the process in which the thickened uterus lining along with its blood vessels is removed from the body of a woman through vaginal bleeding?

Answer

The process in which the thickened uterus lining along with its blood vessels is removed from the body of a woman through vaginal bleeding is called menstruation.

25. Question

Which comes earlier in the life of a woman: menarche or menopause?

Answer

Menarche comes earlier in the life of a woman.

26 A. Question

Around which age menarche occurs in girls ?

Answer

At puberty (10 to 12 years of age).

26 B. Question

Around which age menopause occurs in woman?

Answer

At 45 to 50 years of age.

27. Question

State one situation (other than menopause) when ovulation and menstruation stop in a woman.

Answer

When a woman is pregnant.

28. Question

Which of the two has a shorter reproductive phase of life: men or women?

Answer

Women has a shorter reproductive phase of life.

29. Question

Which of the following combinations of sex chromosomes produces a male child (or boy)?

XX or XY

Answer

XY combination of sex chromosomes produces a male child (or boy).

30. Question

Which of the two, sperm or egg cell (ovum), decides the sex of the child?

Answer

Sperm decides the sex of the child.

31. Question

What is the legal age for the marriage of (a) boys, and (b) girls, in our country?

Answer

The legal age for the marriage is (a) 21 years for boys, and (b) 18 years for girls in our country.

32. Question

Name a natural balanced food for infants.

Answer

Mother's milk is a natural balanced food for infants.

33. Question

During which time the adolescent girls should take special care of personal hygiene?

Answer

The adolescent girls should take special care of personal hygiene during the time of menstrual flow.

34. Question

Write the full name of (i) AIDS, and (ii) HIV.

Answer

(i) **AIDS** stands for Acquired Immunodeficiency Syndrome. (ii) **HIV** stands for Human Immunodeficiency virus.

35. Question

Write the name of the virus which causes AIDS disease.

Answer

HIV virus causes AIDS disease.

36. Question

Name the endocrine gland attached to the base of brain.

Answer

Pituitary gland is attached to the base of brain.

37. Question

Name the endocrine gland which secretes the growth hormone.

Answer

Pituitary gland secretes the growth hormone.

38. Question

Name the substance which is needed continuously by thyroid gland to make thyroxine hormone.

Answer

Iodine is needed continuously by thyroid gland to make thyroxine hormone.

39. Question

State the main symptom of goiter.

Answer

The main symptom of goiter is a very big and bulging throat.

40. Question

Name the hormone whose deficiency in body causes goiter.

Answer

The deficiency of thyroxine hormone in body causes goiter.

41. Question

Name the gland which secretes insulin hormone.

Answer

Pancreas secretes insulin hormone.

42. Question

Name the disease caused by the insufficient production of insulin hormone by pancreas.

Answer

The disease caused by the insufficient production of insulin hormone by pancreas is diabetes.

43. Question

Name the hormone which prepares our body for action to face emergency situation like danger, fear, anger or excitement.

Answer

Adrenaline hormone prepares our body for action to face emergency situation like danger, fear, anger or excitement.

44. Question

Name the endocrine gland which secretes hormone that maintains correct salt balance in the blood.

Answer

Adrenal gland secretes hormone called aldosterone that correct salt balance in the blood.

45. Question

Name a hormone (other than adrenalin) secreted by adrenals.

Answer

Aldosterone hormone is also secreted by adrenals.

46. Question

Name the hormone whose deficiency causes diabetes.

Answer

Insulin hormone deficiency causes diabetes.

47. Question

Name the hormone which is required for the metamorphosis of larvae (tadpoles) into adult frogs.

Answer

Thyroxine hormone is required for the metamorphosis of larvae (tadpoles) into adult frogs.

48. Question

Name the hormone which brings about metamorphosis in silk moth and changes caterpillar (larva) into adult silk moth.

Answer

Insect hormone brings about metamorphosis in silk moth and changes caterpillar (larva) into adult silk moth.

49. Question

State whether the following statements are true or false:

- (a) The estrogen hormone develops deeper voice in males at puberty.
- (b) Menstruation stops in men permanently around the age of 45 to 50 years.
- (c) Man (father) is responsible for the sex of the body.
- (d) The sex chromosomes in all the gametes (sperms) of a man are not identical.
- (e) Half the female gametes contain X chromosomes and the other half contain Y chromosomes.
- (f) It is the sperm which determines the sex of a child.
- (g) Each normal cell in our body contains 23 chromosomes and the other half contain Y chromosomes.

- (h) A girl should not be allowed to work in the kitchen during menstruation.
- (i) A woman (mother) is responsible for the sex of her child.
- (j) Metamorphosis in insects (like silk moth) is brought about by thyroxine hormone.

Answer

- (a) False, the estrogen hormone is a female hormone secreted by ovaries.
- (b) False, menstruation stops in woman permanently around the age of 45 to 50 years.
- (c) True, Man (father) is responsible for the sex of the body.
- (d) True, the sex chromosomes in all the gametes (sperms) of a man are not identical.
- (e) False, female gametes contain only X chromosomes.
- (f) True, Sperm determines the sex of a child.
- (g) False, each normal cell in our body contains 23 pair of chromosomes.
- (h) False, it is a myth and not facts. A girl should not be allowed to work in the kitchen during menstruation.
- (i) False, man is responsible for the sex of his child.
- (j) False, Metamorphosis in insects (like silk moth) is brought about by insect hormone.

50. Question

Fill in the following blanks with suitable words:

- (a) Sexual maturity is reached at.....
- (b) The changes which occur in boys and girls at puberty are brought about by various.....
- (c) Initially, girls grow.....than boys.
- (d) The changes occurring in body and mind during adolescence are a natural part of.....up.
- (e) The features which help us to distinguish between a mature boy and a girl are called.....sexual characteristics.
- (f) The onset of puberty is controlled by.....
- (g) Menstrual cycle in women is controlled by.....

(h) Each normal body cell in humans contains.....pairs of chromosomes out of which.....pair is of sex chromosomes.

(i) X and Y chromosomes are called.....chromosomes.

(j) Early marriage and motherhood cause health problems in theand the.....

(k) The protective foods are And

(l) Thyroid and adrenals secrete their hormones when they receive instructions from.....gland through its hormones.

(m) Metamorphosis in amphibians is brought about by.....hormone.

Answer

(a) puberty (b) hormones (c) faster (d) growing

(e) secondary (f) hormones (g) hormones (h) 23 ; 1

(i) sex (j) mother; child (k) fruits; vegetables (l) pituitary (m) thyroxine

Short Answer Type Questions

51. Question

Define adolescence. State some of the change which take place in boys and girls during adolescence.

Answer

The period of life, when the body undergoes changes, leading to reproductive maturity, is called adolescence. Adolescence begins around the age of 11 and lasts upto 18 or 19 years of age.

The changes which take place in boys are facial and body hair growth, voice deepens, testes start to make sperms etc.

The changes which take place in girls are breast grow, ovaries start to release egg, menstruation begins etc.

52. Question

What is puberty? Who attains puberty at an earlier age in human beings: male (boy) or female (girl).

Answer

The age at which the sex hormones and gametes begin to be produced and the body and the girl become sexually matured is called puberty.

Generally girl attains puberty at an earlier age (11 to 12 years) in human beings.

53. Question

Write two changes that happen during puberty to: (a) both boys and girls (b) boys only (c) girls only.

Answer

(a) (i) There is a sudden increase in the height of both boys and girls during puberty.

(ii) Development of sex hormones also take place in both boys and girls during puberty.

(b) Changes that place only in boys during puberty are:

(i) Growth of hairs on chest.

(ii) Enlargement of voice box which leads to much deeper voice

(c) Changes that place only in girls during puberty are:

(i) Mammary gland enlargement

(ii) Menstruation.

54 A. Question

State two ways in which the body shape of boys changes during puberty.

Answer

The changes in body shape of boys during puberty occur in following ways:

(i) In boys, shoulder become broad and chest become wide.

(ii) In boys, the muscles of the body grow more prominently than in the girls.

54 B. Question

State two ways in which the body shape of girls changes during puberty.

Answer

The changes in body shape of girls during puberty occur in following ways:

(i) In girls, the region below the waist becomes wider.

(ii) Girls have high pitched voice.

55. Question

State one change in the body shape of grown up boys and one change in the body shape of grown up girls which makes them look different.

Answer

In boys, the muscles of the body grow more prominently than in the girls. Whereas in girls, the region below the waist becomes wider. Thus, the changes in adolescent boys and girls are different.

56 A. Question

What is the effect of a larger voice box in grown up boys?

Answer

Voice box is also known as larynx. In adolescent boys, voice box begins to grow and becomes large. Because of larger voice box, the voice becomes hoarse in grown up boys.

56 B. Question

What is the effect of a smaller voice box in grown up girls?

Answer

In girls, larynx is small in size due to which they have a high pitched voice.

57. Question

What is Adam's Apple? Which of the two usually have an Adam's Apple: grown up boys or grown up girls?

Answer

In adolescent boys, voice box can be seen as a protruding part of the throat called Adam's apple. Grown up boys usually have an Adam's apple.

58. Question

What change in the voice of body takes place when they reach puberty? What is the cause of this change?

Answer

When a boy reaches puberty, then his voice box (also known as larynx). In adolescent boys, voice box begins to grow and becomes large. Because of larger voice box, the voice becomes hoarse in grown-up boys.

59 A. Question

Name two male sex organs and two female sex organs which develop completely at puberty.

Answer

At puberty, male sex organs like the testes and penis develop completely. In girls, female sex organs like ovaries and uterus develop completely.

59 B. Question

Name two things which may develop on the face of adolescent boys and girls during puberty due to the increased activity of sebaceous glands and sweat glands in the skin.

Answer

Many adolescent boys and girls may get acne and pimples on the face during puberty due to the increased activity of sebaceous glands and sweat glands in the skin.

60 A. Question

State two secondary sexual characteristics in mature boys and two in mature girls.

Answer

Secondary sexual characteristics in mature boys:

(I) Voice becomes deeper (low pitched voice).

(II) Facial hair such as beard and moustache develop.

Secondary sexual characteristics in mature girls:

(I) Development of breast.

(II) Initiation of menstrual cycle.

60 B. Question

Which of the following are secondary sexual characteristics?

Ovaries, Moustache, Penis, Broad hips, Vagina, Beard, Breast, Adam's Apple, Wide shoulders, uterus, Testes, Deeper voice.

Answer

Moustache, broad hips, beard, breast, Adam's apple, wide shoulders and deeper voice are secondary sexual characteristics whereas ovaries, penis, vagina, uterus and testes are primary sexual characteristics.

61. Question

Which of the following are endocrine glands?

Salivary gland, Thyroid gland, Adrenal gland, Sweat gland, Pituitary gland, Sebaceous gland (Oil gland)

Answer

Thyroid gland, adrenal gland and pituitary gland are endocrine gland as they secrete their secretion directly into the bloodstream. So, they are termed as ductless gland. While salivary gland, sweat gland and sebaceous gland (oil gland) secrete their secretions through ducts.

62 A. Question

What name is given to the onset of menstruation in human females (or girls)?
At what age does this occur?

Answer

The onset of menstruation in human females (or girls) is termed menarche. It occurs at puberty (10 to 12 years of age).

62 B. Question

What name is given to the permanent stoppage of menstruation in women?
At what age does this occur?

Answer

The permanent stoppage of menstruation in women is termed menopause. It occurs at 45 to 50 years of age.

63. Question

Who is responsible for the sex of the unborn child: father or mother? Why?

Answer

The two chromosomes that determine the sex of the unborn baby are called sex chromosomes named **X chromosomes** and **Y chromosomes**. A female has two X chromosomes, while a male has one X and one Y chromosome. The gametes (egg and sperm) have only one set of chromosomes. Thus, in females all the egg cells contain X chromosomes while in males, half sperm have X chromosomes and half sperms have Y chromosomes.

When a sperm containing X chromosome fertilizes the egg, the zygote would have XX chromosomes and develop into a female child. If the sperm contributes a Y chromosome to the egg (ovum) at fertilization, the zygote would develop into a male child.

Thus, father is responsible for the sex of the baby which is born.

64. Question

What will be the sex of the child born:

(a) if X chromosome carrying sperm fuses with an egg cell carrying X chromosome?

(b) if Y chromosome carrying sperm fertilizes an ovum containing X chromosome?

Answer

(a) If X chromosome carrying sperm fuses with an egg cell carrying X chromosome at fertilization, then the zygote will have XX chromosomes and develop into a female child.

(b) If Y chromosome carrying sperm fuses with an egg cell carrying X chromosome at fertilization, then the zygote will have XY chromosomes and develop into a male child.

65. Question

What are hormones? Where are hormones made in the human body?

Answer

Hormones are chemical substances which coordinated the activities of the living organisms. Hormones are made and secreted by ductless glands called endocrine glands in the body. The hormones are released directly into the bloodstream and carried to the target site through blood circulatory system.

66. Question

What are sex hormones? Name two sex hormones.

Answer

Hormones released by the reproductive organs like testes and ovaries and involved in the development of secondary sexual characteristics are called sex hormones. The two common sex hormones are testosterone and estrogen.

67. Question

Define (i) menarche, and (ii) menopause.

Answer

(i) The first occurrence of menstruation at puberty is called menarche.

(ii) The permanent stoppage of menstruation is termed menopause. It occurs at 45 to 50 years of age.

68. Question

What is menstruation? Explain.

Answer

Menstruation is a process in which blood and mucous flows out every month through the vagina. Menstruation usually lasts for 3 to 5 days in human females. The frequency of menstrual cycle in human females is once in a month if egg is not fertilized.

69. Question

What are sex chromosomes? Name the two types of sex chromosomes.

Answer

The two chromosomes that determine the sex of the unborn baby are called sex chromosomes named **X chromosomes** and **Y chromosomes**.

A female has two X chromosomes, while a male has one X and one Y chromosome. The gametes (egg and sperm) have only one set of chromosomes.

70. Question

Explain how sex is determined in the unborn baby.

Answer

The two chromosomes that determine the sex of the unborn baby are called sex chromosomes named X chromosomes and Y chromosomes. A female has two X chromosomes, while a male has one X and one Y chromosome. The gametes (egg and sperm) have only one set of chromosomes. Thus, in females all the egg cells contain X chromosomes while in males, half sperm have X chromosomes and half sperms have Y chromosomes.

When a sperm containing X chromosome fertilizes the egg, the zygote would have XX chromosomes and develop into a female child. If the sperm contributes a Y chromosome to the egg (ovum) at fertilization, the zygote would develop into a male child.

Thus, father is responsible for the sex of the baby which is born.

71. Question

What are the various ways in which AIDS virus (HIV) can be transmitted?

Answer

Various ways in which AIDS virus (HIV) can be transmitted are as follows:

- By sharing the syringes used for injecting drugs.
- It can be transmitted to an infant from the infected mother through her milk.
- It can be transmitted through sexual contact with a person infected with HIV.

72. Question

Explain how, the use of drugs helps in spreading AIDS disease.

Answer

AIDS is caused by a dangerous virus called HIV. This virus can be spread from infected person to healthy person by sharing the syringes used for injecting drugs.

73. Question

State the harmful effects of taking drugs.

Answer

Harmful effects of taking drugs are as follows:

- (i) Drugs are addictive. If you take them once, you feel like taking them again and again.
- (ii) They harm the body in the long run.
- (iii) They ruin health and happiness.

74. Question

Name one hormone secreted by pituitary gland. State the function of this hormone.

Answer

Growth hormone is secreted by pituitary gland. Growth hormone is necessary for the normal growth of a person.

75. Question

Explain why, people are advised to use iodized salt in cooking food.

Answer

Iodine is needed continuously by thyroid gland to make thyroxine hormone. If people do not have enough iodine in their diet, they will get goiter disease caused by lack of thyroxine. So, people are advised to use iodized salt in cooking food.

76. Question

What is goiter? What causes goiter?

Answer

The deficiency of thyroxine hormone in adults causes a disease called goiter. The main symptom of disease is that the neck of the person suffering from Goitre appears to be swollen.

77. Question

Which hormone lowers the blood sugar in humans? Name the gland which secretes this hormone.

Answer

Insulin hormone lowers the blood sugar in humans. Pancreas gland secretes insulin hormone.

78. Question

Name the hormone secreted by pancreas. What is the function of this hormone?

Answer

Insulin hormone is secreted by pancreas. The function of insulin hormone is to lower the blood sugar level.

79. Question

What is the function of adrenaline hormone in the body?

Answer

There are two adrenaline glands in the body and are located on the top of the kidneys. Adrenaline glands secrete adrenaline hormone which helps the body to adjust to stress when one is very angry, embarrassed, or worried.

80. Question

Name six endocrine glands in the human body. Also name the hormones secreted by each one of these glands.

Answer

Six endocrine glands in the human body are as follows:

- (i) Pituitary gland- It secretes growth hormone.
- (ii) Thyroid gland- It secretes thyroxine hormone.
- (iii) Pancreas- Secretes insulin hormone.
- (iv) Adrenal gland- Secrete adrenaline hormone.
- (v) Testes- Secrete testosterone.

(vi) Ovaries – Secrete estrogen.

81. Question

Where are the following glands located in the human body?

- (i) Pituitary
- (ii) Thyroid
- (iii) Pancreas
- (iv) Adrenals

Answer

- (i) Pituitary gland is attached to the base of brain.
- (ii) Thyroid gland is present in the neck.
- (iii) Pancreas is just below the stomach in our body.
- (iv) There are two adrenal glands in our body and are located on the top of the kidneys.

82. Question

What will happen if the water in which tadpoles are growing does not contain sufficient iodine?

Answer

In frog, metamorphosis is controlled by thyroxine hormone and thyroxine production requires the presence of iodine. So, if the water in which tadpoles are growing does not contain sufficient iodine, the tadpole cannot become adult.

83. Question

What is acne?

Answer

Acne is a skin condition marked by eruption of numerous red pimples on the face.

84. Question

What are pimples? How are pimples formed?

Answer

Pimples are small red spots on the face of a person. Many adolescent boys and girls may get acne and pimples on the face during puberty due to the increased activity of sebaceous glands and sweat glands in the skin.

The excess oil secreted by sebaceous glands and sweat secreted by sweat glands get collected in the tiny pores of the skin. The accumulation of oil, sweat and dead skin cells block the tiny pores in the face skin. Then, bacteria grow in the blocked skin pores causing swelling and redness of skin which leads to the formation of pimples.

85. Question

Name two food items each which provide mainly:

- (a) carbohydrates for energy
- (b) fats for energy
- (c) Proteins for growth
- (d) vitamins and minerals for good health

Answer

- (a) Rice and roti.
- (b) Butter and ghee.
- (c) Milk and pulses
- (d) Fruits and vegetables.

86. Question

Why is iron mineral needed by our body? Name some of the iron-rich foods.

Answer

Iron mineral is needed by our body as it builds our blood. Some of the iron rich foods are leafy vegetables, meat, jaggary, citrus, Indian gooseberry (amla).

87. Question

State any two practices which can be adopted by adolescents to maintain personal hygiene.

Answer

Two practices which can be adopted by adolescents to maintain personal hygiene are given below:

- (i) Adolescents boys and girls should take bath regularly.

(ii) Adolescent girls should take care of cleanliness of the body during the time of periods.

88. Question

Why is it more necessary for adolescents to take bath regularly (at least once everyday)?

Answer

It is more necessary for adolescents to take bath regularly (at least once everyday) because increased activity of sweat glands sometimes makes the body smelly.

89. Question

What will happen if personal hygiene (Cleanliness of body) is not maintained by adolescents?

Answer

If personal hygiene (Cleanliness of body) is not maintained by adolescents, it will increase the chances of catching bacterial infection.

90. Question

State the various ways in which early marriage and motherhood is harmful to the girls.

Answer

The various ways in which early marriage and motherhood is harmful to the girls are as follows:

(i) Early marriage and motherhood cause health problems in the mother and the child.

(ii) It reduces curtails employment opportunities for the young woman.

(iii) It may cause mental agony as she is not ready for responsibilities of motherhood.

Long Answer Type Questions

91 A. Question

What changes take place in boys during puberty?

Answer

Changes take place in boys during puberty:

- (i) The most conspicuous change (clear visible change) in boys during puberty is the sudden increase in height.
- (ii) Shoulder become broad and chest become wide.
- (II) Muscles of the body grow more prominently than in the girls.
- (iii) Voice deepens in boys. It becomes low pitched voice.
- (iv) Many adolescent boys and girls may get acne and pimples on the face during puberty due to the increased activity of sebaceous glands and sweat glands in the skin.
- (v) Hair grow on the face in the form of moustache and beard, and on the chest.
- (vi) Hair grows under the arms and in the region above the thighs or the pubic region.
- (vii) Testes and penis become larger.
- (viii) Testes start to make sperm.

91 B. Question

What changes take place in girls during puberty?

Answer

Changes which occur in girls during puberty are:

- (i) Rapid increase in height.
- (ii) The region below the waist becomes wider.
- (iii) Hair grow in armpits and in pubic regions between the thighs.
- (iv) The ovary enlarges and starts producing matured eggs.
- (v) Menstruation begins.
- (vi) Have high pitched voice.
- (vii) Development and enlargement of breast.

92 A. Question

What is meant by the 'primary sexual characteristics' in humans? State two primary sexual characteristics in boys and two in girls.

Answer

Sexual characteristics which are present in babies at birth are called primary sexual characters. They include internal and external sex organs which are present in babies at the time of their birth. The primary sexual characteristics in **males** are Testes and penis.

The primary sexual characteristics in females are ovaries and uterus.

92 B. Question

What is meant by 'secondary sexual characteristics' in humans? Explain with the help of two examples.

Answer

Sexual characteristics which develop in mature boys and girls are called secondary sexual characters. These changes are controlled by hormones.

Hormones released by the reproductive organs like testes and ovaries and involved in the development of secondary sexual characteristics are called sex hormones. The two common sex hormones are testosterone and estrogen.

Secondary sexual characteristics in males are:

- (i) Hair grow on the face in the form of moustache and beard, and on the chest.
- (ii) Testis grow and starts producing sperms in males.

Secondary sexual characteristics in females are:

- (i) Milk secreting glands or mammary glands develop inside the breasts.
- (ii) Initiation of menstruation.
- (iii) Ovary enlarges and starts producing matured eggs.

93. Question

Describe menstrual cycle. What is the duration of menstruation cycle in women?

Answer

Menstrual cycle begins when a girl reaches the age of puberty. At this age, ovaries release sex hormones in the blood which cause maturation of ova in ovaries. One mature egg or ovum is released by one of the ovaries once in about 28 to 30 days. This is termed as ovulation. Before ovulation, uterus prepares itself to receive the fertilized egg. The inner lining of the uterus becomes thick and soft with lots of blood capillaries in it.

If the ovum does not get fertilized, then the inner lining of uterus is not required and hence it breaks down and comes out through the vagina in the form of a bleeding called menstruation.

Menstruation occurs once in about 28 to 30 days and it usually lasts for 3 to 5 days.

94 A. Question

What is an exocrine gland? Name two exocrine glands.

Answer

A gland which secretes its product into a duct or tube is called exocrine gland. Salivary gland and sweat gland are examples of exocrine glands.

94 B. Question

What is an endocrine gland? Name two endocrine glands.

Answer

Endocrine glands are also known as ductless glands as they release their secretion directly into the bloodstream. Thyroid gland, adrenal gland and pituitary gland are endocrine glands.

95 A. Question

What is meant by 'reproductive health'?

Answer

Reproductive health is defined as a state of physical, mental and social well-being of a person in all matters relating to the reproductive system at all stages of life.

95 B. Question

State the conditions necessary to maintain good reproductive health during adolescence.

Answer

The important conditions necessary to maintain good reproductive health during adolescence are:

- (i) It is necessary to eat balanced diet during adolescence.
- (ii) It is necessary to maintain personal hygiene during adolescence.
- (iii) It is necessary to take adequate physical exercise during adolescence.
- (iv) It is necessary to avoid taking any drugs during adolescence.

Multiple Choice Questions (MCQs)

96. Question

Reproductive age in women starts when their:

- A. menstruation starts
- B. breasts start developing
- C. body weight increases
- D. height increases

Answer

In females, the reproductive phase of life begins at puberty (10 to 12 years of age) and generally lasts till the age of approximately 45 to 50 years. The first occurrence of menstruation at puberty is called menarche. It is the beginning of the reproductive life of a girl.

97. Question

The sex of a child is determined by:

- A. the presence of an X chromosomes in egg (or ovum)
- B. the presence of a Y chromosomes in sperm
- C. the egg of father and mother
- D. the length of the mother's pregnancy

Answer

The sex of a child is determined by the presence of a Y chromosomes in sperm.

98. Question

The legal age for the marriage of boys in our country is:

- A. 16 years
- B. 18 years
- C. 21 years
- D. 24 years

Answer

The legal age for the marriage is 21 years for boys, and 18 years for girls in our country.

99. Question

The legal age for the marriage of girls in our country is:

- A. 16 years
- B. 18 years
- C. 21 years
- D. 24 years

Answer

The legal age for the marriage is 21 years for boys, and 18 years for girls in our country.

100. Question

The right meal for adolescents consists of:

- A. chips, noodles, coke
- B. chapati, dal, vegetables
- C. rice, noodles and burger
- D. vegetable cutlets, chips and lemon drink

Answer

Adolescents need balanced diet for normal growth and development of the body. A balanced diet means that the meals include proteins, carbohydrates, fats and vitamins in requisite proportions. Our Indian meal of roti /rice, dal(pulses) and vegetables is a balanced meal.

101. Question

Adolescents should be careful about what they eat because Adolescents should be careful about what they eat because:

- A. proper diet develops their brains
- B. proper diet is needed for the rapid growth taking place in their body
- C. adolescents feel hungry all the time
- D. taste buds are well developed in teenagers

Answer

Adolescents should be careful about what they eat because proper diet is needed for the rapid growth taking place in their body.

102. Question

AIDS disease is caused by:

- A. bacteria
- B. virus
- C. worms
- D. protozoa

Answer

AIDS is caused by a dangerous virus called HIV. This virus can be spread from infected person to healthy person by sharing the syringes used for injecting drugs.

103. Question

Which of the following human disease can be prevented by the same hormone which brings about metamorphosis in frogs?

- A. diabetes
- B. anaemia
- C. goiter
- D. reekets

Answer

Thyroxine hormone is required for the metamorphosis of larvae (tadpoles) into adult frogs. Iodine is needed continuously by thyroid gland to make thyroxine hormone. If people do not have enough iodine in their diet, they will get goiter disease caused by lack of thyroxine. So, people are advised to use iodized salt in cooking food.

104. Question

Which of the following is a mis-matched pair?

- A. adrenaline : pituitary gland
- B. estrogen : ovary
- C. pancreas : insulin
- D. testosterone : testis

Answer

Adrenaline hormone secreted by adrenal glands whereas pituitary gland secretes growth hormone.

105. Question

The hormone which is associated with male puberty is called:

- A. oestrogen
- B. adrenaline
- C. testosterone
- D. progesterone

Answer

Testosterone is a male sex hormone which is secreted by testes. This hormone brings changes in boys such as growth of facial hair.

106. Question

The dramatic changes in body features associated with puberty are mainly because of the secretions of:

- A) Thyroxine
- B) Estrogen
- C) Adrenaline
- D) Testosterone

- A. A and B
- B. B and C
- C. A and C
- D. B and D

Answer

Estrogen and testosterone are sex hormones which involved in the development and control of the reproductive organs and secondary sexual characteristics.

107. Question

Which of the following endocrine gland does not occur as a pair in the human body?

- A. adrenal
- B. pituitary

C. testis

D. ovary

Answer

Pituitary gland is attached to the base of brain. It secretes growth hormone.

108. Question

Iodine is necessary for the synthesis of one of the following hormones. This hormone is:

A. adrenaline

B. auxine

C. insulin

D. thyroxine

Answer

Iodine is needed continuously by thyroid gland to make thyroxine hormone. If people do not have enough iodine in their diet, they will get goiter disease caused by lack of thyroxine. So, people are advised to use iodized salt in cooking food.

109. Question

Which of the following endocrine gland does not a primary sexual characteristic in females?

A. fallopian tubes

B. ovaries

C. seminal vesicles

D. vagina

Answer

Ovaries, vagina and fallopian tubes are organs of female reproductive system whereas seminal vesicles are part of male reproductive system.

110. Question

Which of the following is the secondary sexual characteristics in females?

A. low pitched voice

B. broadening of chest

- C. broadening of hip
- D. developing Adam's apple

Answer

During puberty, the region below the waist becomes wider in girls.

111. Question

Which of the following can lead to menstruation in a 21 year old woman during ovulation?

- A) Sperms available for fertilization
 - B) Oviducts blocked
 - C) Sperms not available for fertilization
 - D) Oviducts not blocked
-
- A. A and B
 - B. B and C
 - C. A and C
 - D. B and D

Answer

There are two conditions which can lead to menstruation in a 21-year-old woman during ovulation. These are: (i) Blocked oviduct and, (ii) sperms not available for fertilization.

112. Question

The faulty functioning of an endocrine gland can make a person very short or very tall. This gland is:

- A. thyroid
- B. pituitary
- C. adrenal
- D. pancreas

Answer

Growth hormone is secreted by pituitary gland. Growth hormone is necessary for the normal growth of a person.

113. Question

Which of the following hormone prepares our body for action in emergency situations?

- A. testosterone
- B. insulin
- C. thyroxine
- D. adrenaline

Answer

Adrenaline hormone prepares our body for action to face emergency situation like danger, fear, anger or excitement.

114. Question

A doctor advised a person to take injection of insulin because:

- A. his blood pressure was high
- B. his heart beat was high
- C. his blood sugar was high
- D. his thyroxine level in blood was high

Answer

Insulin hormone is secreted by pancreas. The function of insulin hormone is to lower the blood sugar level.

115. Question

Pimples and acne are formed due to the increased activity of:

- A) Adrenal glands
- B) Sebaceous glands
- C) Thyroid gland
- D) Sweat glands

- A. A and b
- B. B and C
- C. A and C
- D. B and D

Answer

Many adolescent boys and girls may get acne and pimples on the face during puberty due to the increased activity of sebaceous glands and sweat glands in the skin.

Questions Based on High Order Thinking Skills (HOTS)**116. Question**

When a human female reaches a certain age, then vaginal bleeding occurs for a few days after regular intervals of time:

- (a) what is this process known as (i) in scientific terms, and (ii) in everyday language?
- (b) What is the human female said to have attained at this stage?
- (c) What does the onset of this process in human female signify?
- (d) At what particular event in the life of a human female this process stops temporarily but starts again?
- (e) What name is given to the event when this process stops permanently?

Answer

- (a) (i) It is known as menstruation in scientific terms.
(ii) It is known as periods in everyday language.
- (b) The process of menstruation begins at Puberty.
- (c) The onset of menstruation in human female signify that the reproductive system of human female has started working.
- (d) In the beginning of pregnancy, the process of menstruation stops temporarily but starts again.
- (e) When menstruation stops permanently, it is termed menopause.

117. Question

A woman is in her reproductive phase of life. Even when the sperms are available at the time of release of a mature ovum by her ovary, fertilization does not take place. Due to this, the woman is unable to bear a baby.

- (a) What is the most likely defect in the reproductive system of this woman?
- (b) Name the technique by which this woman can also have a baby?

Answer

(a) Due to blocked oviducts of the woman, the ovum released by her ovary cannot meet the sperm and get fertilized.

(b) In vitro fertilization technique is used to help those couples in having babies who can produce sperms and ovum but fertilization does not take place inside the woman's body due to blocked oviducts.

118. Question

Raj Kumar and his wife Sunita have been blessed with a baby girl. On the other hand, Kripa Shanker and his wife Vimla have been blessed with a baby boy. What type of sex chromosome has been contributed:

(a) by raj Kumar

(b) by Sunita

(c) by Kirpa Shanker

(d) by Vimla

Answer

If X chromosome carrying sperm fuses with an egg cell carrying X chromosome at fertilization, then the zygote will have XX chromosomes and develop into a female child.

In the other case, if Y chromosome carrying sperm fuses with an egg cell carrying X chromosome at fertilization, then the zygote will have XY chromosomes and develop into a male child. Thus, father is responsible for the sex of the unborn child.

(a) Raj Kumar and his wife Sunita have been blessed with a baby girl. It means, X chromosome has been contributed by raj Kumar.

(b) Sunita also contributed X chromosome.

(c) Kripa Shanker and his wife Vimla have been blessed with a baby boy, thus, kripa shanker contributed Y chromosome.

(d) Vimla contributed X chromosome.

119. Question

A gland W is located just below the stomach in the human body. The gland W secretes a hormone X. The deficiency of hormone X in the body causes a disease Y in which the blood sugar level of a person rises too much. The person having high blood sugar is called Z. What are W, X, Y and Z?

Answer

W is Pancreas ; X is Insulin ; Y is Diabetes ; Z is Diabetic.

120. Question

It was observed that the tadpoles are not growing into adult frogs in a village pond. A scientist who was asked to find the reason for this concluded that the pond water did not contain sufficient amount of a mineral P which could make a hormone Q. The hormone Q can causes a phenomenon R in tadpoles so that they become adult frogs.

(a) What are (i) P (ii) Q, and (ii) R?

(b) name one human disease which can also be caused due to the deficiency of P in the food and water.

Answer

(a) (i) iodine (ii) Thyroxine (ii) Metamorphosis

(b) Iodine is needed continuously by thyroid gland to make thyroxine hormone. If people do not have enough iodine in their die, they will get goiter disease caused by lack of thyroxine. So, people are advised to use iodized salt in cooking food.