Chapter - 10
Reaching the Age of Adolescence

Multiple Choice Questions

1.The belief that the mother is completely responsible for the sex of the child is wrong because the child
(a) gets sex chromosome only from the mother.
(b) develops in the body of the mother.
(c) gets one sex chromosome from the mother and the other from the father.
(d) gets sex chromosome only from the father

Soln:

Answer is (c) gets one sex chromosome from the mother and the other from the father.

Explanation:

Mother has XX in their 23rd chromosome set. Mather always donates X to the offspring. Father has XY chromosome on the 23rd set. If father donates X child will be female. If Father donates Y then child will be male. Hence it is the father who is responsible for the sex of the child.

2. AIDS can spread from an infected person to another person through
(a) sharing food
(b) blood transfusion
(c) sharing comb
(d) a mosquito bite

Soln:

Answer is (b) blood transfusion

Explanation:

AIDS can be transmitted from infected person by following means
1.Sharing needles and syringes
2.By sexual means through exchange of fluids.
3.From infected mother to foetus.
4.From infected mother to baby through breast milk.

3. Given below are events that lead to pregnancy and development of embryo.

i)Fertilization of egg
ii)Maturation of egg
iii)Release of egg
iv)Embedding of embryo in thickened uterine wall. Which of the following options gives the correct order of sequence in which they occur?

(a) i, ii, iii, iv,
(b) ii, i, iii, iv
(c) i, iv, ii, iii
(d) ii, iii, i, iv

Soln:

Answer is (d) ii, iii, i, iv

Explanation:

Sequence of events are as follows .

1. Maturation of egg after puberty
2.Release of egg cell
3.Fertilization of egg by sperm to form zygote
4.Repeated division of zygote to form embryo
5.Embyro gets embed in the wall of uterus for further development.

4. For the metamorphosis of tadpoles which of the following elements must be available in water?
(a) chlorine
(b) carbon
(c) sulphur
(d) iodine

Soln:

Answer is (d) iodine

Explanation:

Metamorphosis is brought by a hormone called as thyroxine. Thyroid gland needs Iodine to secrete Thyroxine. Hence Iodine should be present in water for the metamorphosis of tadpoles.

5. The most conspicuous visible change that occurs in boys during puberty is:
(a) development in voice box.
(b) increase in height.
(c) production of sperms.
(d) increased sweating.

Soln:

Answer is (b) increase in height.

Explanation:

Most conspicuous change during puberty is the sudden increase in height. At this time the long bones, that is, the bones of the arms and the legs elongate and make a person tall.

6. Structures present in a cell which is responsible for determination of the sex of a baby is
(a) cytoplasm
(b) cell membrane
(c) nucleus
(d) chromosome

Soln:

Answer is d (d) chromosome

Explanation:

23rd set of chromosome which is called as sex chromosome determines the sex of the child. If 23red set of chromosome is XX baby will be female and if sex chromosome is XY then the baby will be a boy.

Very Short Answer Questions

7. Unscramble the underlined words in the following sentences.
(a) Reproductive life of a woman lasts from hacreemn to spauoemen.
(b) The development of a caterpillar to an adult butterfly is termed as poommertaissh.
(c) The overgrowth of sumselc in xalnyr leads to the hoarse voice in adolescent boys.
(d) Dannalier helps the body to adjust and fight the stress.

Soln:

(a) menarche, menopause
(b) metamorphosis
(c) muscles, larynx
(d) Adrenalin

8. Complete the following sentences.
(a) In females, the uterine wall thickens to receive the _____.
(b) Endocrine glands release hormones directly into_____for transportation to the _____.
(c) The sex hormones,_____ and estrogen are responsible for the development of _____ characters.
(d) Release of sex hormones is under the control of a hormone secreted from the _____.

Soln:

(a) In females, the uterine wall thickens to receive the fertilized egg.
(b) Endocrine glands release hormones directly into bloodstream for transportation to the target site.
(c) The sex hormones, Testosterone, estrogen and estrogen are responsible for the development of secondary sexual characters.
(d) Release of sex hormones is under the control of a hormone secreted from the pituitary gland.

9. Give a suitable word for each of the following statements.
(a) The site which responds to a hormone.
(b) Name of a gland which transports secretions through ducts.
(c) Chemicals which control changes at adolescence stage.
(d) It marks the beginning of reproductive period.

Soln:

(a) Target site
(b) Sweat glands/salivary glands/oil glands (any one)
(c) Hormones
(d) Puberty

10. Name the hormone that is released by testes at the onset of puberty.

Soln:

Testosterone is the hormone that is released by testes at the onset of puberty

11. Name the female hormone produced by ovaries that helps in development of mammary glands

Soln:

Estrogen is the female hormone produced by ovaries that helps in development of mammary glands.

Short Answer Questions

12. Match the hormones given in Column A with their deficiency disease given in Column B.

Column A	Column B
(a) thyroxine	(i) salt imbalance
(b) growth hormone	(ii) diabetes
(c) Insulin	(iii) goitre
(d) Adrenal hormone	(iv) Dwarfism

Soln:

Column A	Column B
(a) thyroxine	(i) salt imbalance
(b) growth hormone	(iv) Dwarfism
(c) Insulin	(ii) diabetes
(d) Adrenal hormone	(i) salt imbalance

13. Lila always eats only dal and rice in every meal. She often falls ill and has become prone to diseases. Can you suggest changes in her diet which can make her healthy and free from disease?

Soln:

Food Lila takes everyday consists of only carbohydrates and proteins. To be free from disease Lila should eat food with vitamins and minerals. She should eat more vegetables and fruits.

14. Mention any two features each that are seen in boys and girls each to distinguish them from each other at puberty.

Soln:

Two features seen in boys at puberty are:
(i) Growth of facial hairs
(ii) Voice becomes hoarse.

Two features seen in girls at puberty are:
(i) Breast development
(ii) Region below the waist becomes wider.

15. We should avoid taking medicines/drugs unless prescribed by a doctor. Give reasons.

Soln:

We should not take medicines/drugs unless prescribed by a doctor because some medicines have side effects and adverse effects. One can get addicted to drugs which ruin our health and happiness.

16. A few of Paheli's classmates eat potato chips and burgers regularly during the recess at school. Are they healthy eating habits? Give reasons.

Soln:

As Potato chips and burgers have very little nutritional value they are not the good foods.

17. Read the statements given below and fill up the blanks with the correct words listed in the box.

deep, ductless, nutrients, thyroxine

(a) The meal that includes all _____ is a balanced diet.
(b) Insufficient production of _____ in the tadpoles leads to their incomplete development.
(c) Endocrine glands are also called _____ glands.
(d) After attaining puberty boys develop a_____ voice

Soln:

(a) The meal that includes all nutrients is a balanced diet.
(b) Insufficient production of thyroxine in the tadpoles leads to their incomplete development.
(c) Endocrine glands are also called ductless glands.
(d) After attaining puberty boys develop a deep voice

18. Fill the blank circles in figure 10.1 and identify the sex of child A and B.

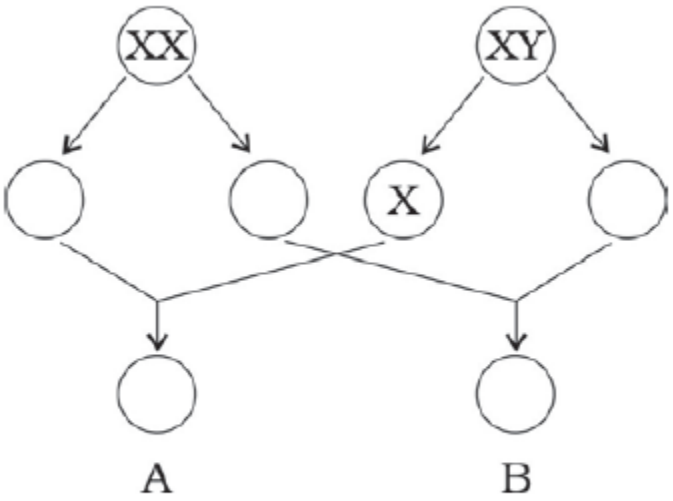
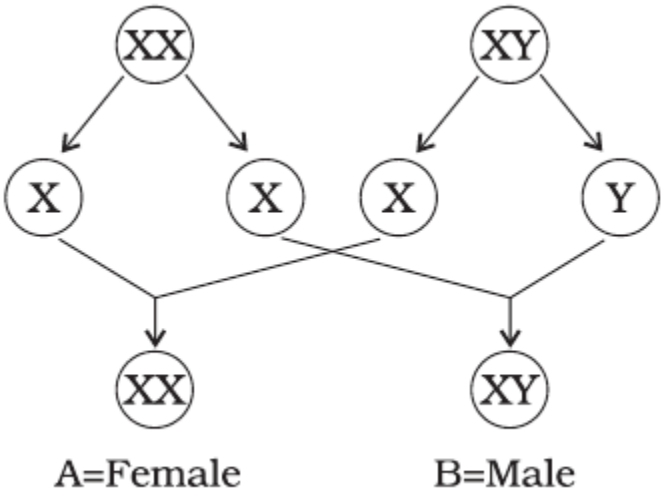


Fig. 10.1

Soln:



19. During adolescence, the body of boys and girls undergoes certain changes. Given below are a few of those changes.
(a) Broad shoulders
(b) Wider chests
(c) Wider region below waist
(d) Development of muscles
(e) Development of mammary glands (f) Growth of facial hair
(g) Acne and pimples on face
(h) Development of sex organs
(i) High-pitched voice
(j) Growth of pubic hair.

Categorise these changes into those that occur in boys and those that occur in girls and fill in the table given below.

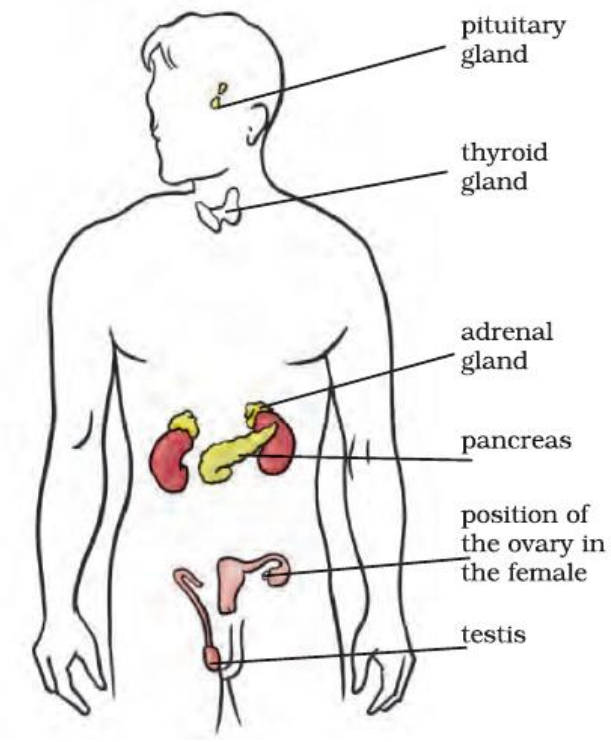
Soln:

Body Changes	
Boys	**Girls**
Broad shoulders	Wider region below waist
Wider chests	Development of mammary glands
Growth of muscles	Acne and pimples on face
Growth of facial hair	Development of sex organs
Acne and pimples on face	High-pitched voice
Development of sex organs	Development of pubic hair
Development of pubic hair	

20. In Fig.10.2 mark the positions of the endocrine glands which release the hormones that:
(a) controls the release of sex hormones.
(b) is responsible for the secondary sexual characters in boys.
(c) prevents diabetes.
(d) maintains the correct salt balance in the blood.

Soln:

a) Pitutary gland
b) Testis
c) Pancreas
d) Adrenal gland



21. Given below are certain food items required for proper nourishment of adolescents. Name the nutrients present in the food items and write their functions.

S. No.	**Food items**	**Major nutrients**	**Functions**
1	**Pulses and nuts**		
2	**Oranges and Amla**		
3	**Sugar, Roti**		
4	**Oils**		
5	**Vegetables**		

Soln:

S. No.	Food items	Major nutrients	Functions
1	Pulses and nuts	Proteins	Growth, repair of body cells
2	Oranges and Amla	Iron And Vitamins	Formation of blood keeps the body healthy
3	Sugar, Roti	Cabohydrates	Provide energy
4	Oils	Fats	Provide energy
5	Vegetables	Vitamins and minerals	Keeps the body healthy and disease free

22. Name the hormone which would be released during the following situations:
(a) a frightened person.
(b) growth of a child to adult.
(c) development of caterpillar to moth.
(d) development of tadpole to frog.

Soln:

(a) **Adrenaline** the hormone which would be released when a person is frightened
(b) **Growth hormone** is responsible for growth of a child to adult.
(c) **Insect hormones** are responsible for development of caterpillar to moth.
(d) **Thyroxine** is responsible for the development of tadpole to frog.

23. In human females, each time during maturation and release of egg the inner wall of uterus thickens. Is this thickening permanent? Give reasons.

Soln:

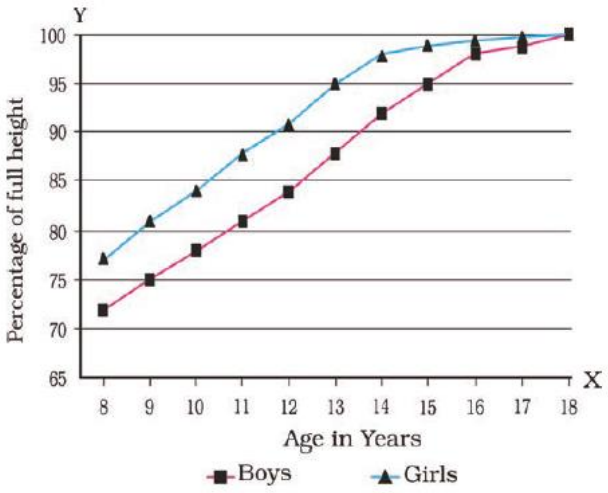
Thickening of uterus wall is not permanent. Upon fertilization zygote starts developing and gets embedded in the uterus wall. This results in pregnancy. During pregnancy no more ore eggs are released thickened uterine lining is released after the delivery of the baby.

24. John and Radha were classmates since childhood. When Radha became eleven years old, she developed a little swelling on her neck. She visited the doctor who started medication for her. After a few years, John also developed a slight protrusion on his throat. He got worried and went to the doctor. But, the doctor assured him that it was a normal feature in boys while they are growing up. Can you think of any reasons for the difference in diagnoses?

Soln:

Goitre may be reason behind swelling of Radha's neck Goitre is the condition of the thyroid gland during which the gland produces insufficient quantity of thyroxine. In case of JOHN's swelling of neck may be because of Adam's apple which is the result of growth of voice box in adolescent boys.

25. Observe the chart and graph given in Fig. 10.3 carefully and answer the following questions.



Age in Years	% of full height	
	Boys	Girls
8	72%	77%
9	75%	81%
10	78%	84%
11	81%	88%
12	84%	91%
13	88%	95%
14	92%	98%
15	95%	99%
16	98%	99.5%
17	99%	100%
18	100%	100%

(a) Which of the line represents the height of boys?
(b) Which line represents the height of girls?
(c) What is the difference between the pattern of increase in the height of boys and girls?
(d) Is this pattern true for each individual?

Soln:

(a) The red line represents the height of boys.
(b) The blue line represents the height of girls.
(c) At the onset of puberty, girls grow faster in height than the boys and by the age of 18 years, approximately both reach their maximum height.
(d) No, the rate of growth in height varies among individuals. Some may grow in height suddenly at puberty and then slow down, while others may grow gradually.

26. Salma had a very soft and smooth skin during her childhood. As she entered adolescence, she developed pimples on her face. The skin specialist advised her to wash her face at regular intervals. Can you explain the reasons for the appearance of pimples on her face and suggest ways to prevent them?

Soln:

After adolescence sweat glands and sebaceous glands increase their secretion. As Salma entered adolescence her sweat gland and sebaceous glands increased their secretion which resulted in the pimples on her face. Regular face wash can keep the face clean and dry which will help Salma to get rid of pimples.

27. Our government has legalised the age for marriage in boys and girls. Give reasons as to why one should get married after a certain age.

Soln:

In India marriage age for girls is 18 years and for boys it is 21. At age 18 girls are not mature enough physical as well as mentally to carry motherhood. Early motherhood will adversely affect on both mother and the child. For boys its 21 as at early age they are not mature enough mentally and they are not stable enough financially.

28. It is believed that height of a child depends upon the genes inherited from parents. However, it is often seen that tall parents may have short children and vice-versa. Are there factors other than genes, that can cause these variations?

Soln:

Height of a person is not just relied on the hereditary character. It depends on the type of food they eat. Physical exercise they do. Secretion levels of various growth hormones. Disease they encounter in their life.