Unit 10(Reaching the Age of Adolescence)

Multiple Choice Questions

Question. 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

Answer. (c) The child gets one sex chrbmosome from the mother and one from the father. The mother has XX combination and always contributes an X-chromosome.

It is the sperm of father which determines the sex of the child. This is because half of the sperms have X-chromosome and ofher half have Y-chromosome.

Question. 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

Answer. (b) AIDS causing virus can be easily passed from an infected person to another person through: – '

1. Sharing of syringes for blood transfusion, taking drugs, etc.
2. Sexual contact
3. From infected mother to foetus

It is not spread through an insect vector (such as insect bite) or through casual contact (such as sharing food, comb, etc).

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

(i) Fertilisation of egg

(ii) Maturation of egg

(iii) Release of egg

(iv) Embedding of embryo in uterus

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)

Answer. (d) The events in sequence are:

– Maturation of egg after puberty in the ovaries of a woman.

– Release of egg call.

– Fertilisation of egg cell by sperm to form a zygote.

– Zygote divides repeatedly to form an embryo.

– Embryo is embedded in wall of uterus for further development to foetus.

Question. 4 For the metamorphosis of tadpoles which of the following elements must be available in water?
(a) Chlorine (b) Carbon
(c) Sulphur (d) Iodine
Answer. (d) For metamorphosis of tadpoles, iodine should be present in water. This is because metamorphosis is brought about by thyroxine hormone that requires the presence of iodine for its production by thyroid gland.

Question. 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
Answer. (b) The most visible change during puberty in boys is sudden increase in height. At this time, the long bones elongate and make a person tall.

Question. 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
Answer. (d) The sex of a baby is determined by the type of sex chromosomes present in the fertilised egg from which the baby develops. There are two types of sex chromosomes-X and Y.
A female has only two X-chromosomes, i.e. XX, whereas a male has one X and one Y-chromosome, i.e. XY combination.

Very Short Answer Type Questions

Question. 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 xalnvr leads to the hoarse voice in adolescent boys.
(d) Dannalier helps the body to adjust and fight the stress.
Answer. (a) menarche, menopause (b) metamorphosis
(c) muscles, larynx (d) adrenaline

Question. 8 Complete the following sentences.
(i) In females, the uterine wall thickens to receive the
(ii) Endocrine glands release hormones directly into for transportation to the
(iii) The sex hormones, and oestrogen are responsible for the development of characters.

(iv) Release of sex hormones is under the control of a hormone secreted from the

Answer. (i) fertilised egg (ii) blood stream; target site/organ
(iii) testosterone (iv) pituitary gland

Question. 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.
Answer. (a) Target site (b) Sweat gland/salivary gland
(c) Hormones (d) Puberty

Question. 10 Name the hormone that is released by testes at the onset of puberty.
Answer. Testosterone is the male hormone, which is released from the testes at the onset of puberty in males. It produces the male secondary sexual characteristics and causes the growth and development of male sex organs.

Question. 11 Name the female hormone produced by ovaries that helps in development of mammary glands.
Answer. Oestrogen Is the female hormone produced by ovaries that help in development of breasts/mammary glands. It also produces female secondary sexual characteristics and causes the growth and development of female sex organs.
Short Answer Type Questions

Question. 12 Match the hormones given in Column I with their deficiency disease given in Column II.

	Column I		Column II
(a)	Thyroxine	(i)	Salt imbalance
(b)	Growth hormone	(ii)	Diabetes
(c)	Insulin	(iii)	Goitre
(d)	Adrenal hormone	(iv)	Dwarfism

Answer. The correct matching]? as.given:
(a)—(iii), (b)—(iv), (c)—(ii). (d)—(i)

Question. 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?
Answer. Lila's diet is not a balanced diet because her meal does not contain the adequate nutritional requirement. She takes only proteins and carbohydrates in every meal. She also requires vitamins and minerals in her meal to protect from various diseases.
Thus, I would suggest her to include fruits and vegetables in her meal, to obtain vitamins and minerals and complete her diet.

Question. 14. Mention any two features of each that are seen in boys and girls which distinguish them from %ach other at puberty.
Answer. Two features seen in boys at puberty are:
(i) Growth of facial hairs (moustache and beard).
(ii) Voice becomes hoarse (Adam's apple seen as bulge).
Two features seen in girls at puberty are:
(i) Development of breasts.
(ii) Region below the waist becomes wider (broader hips).

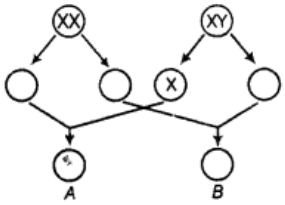
Q. 15 We should avoid taking medicines/drugs unless prescribed by a doctor. Give reasons.

Ans. We should avoid taking medicines/drugs unless prescribed by a doctor because:
(i) Several medicines have adverse side effects and have specific dosage levels which if not followed may harm the body.
(ii) Drugs can be addictive too and can ruin our health and happiness.

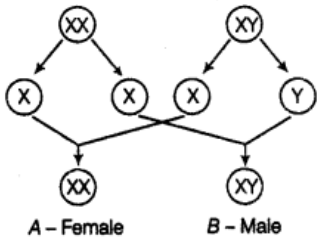
Q. 16 A few of Paheli's classmates eat potato chips and- burgers regularly during the recess in school. Are these healthy eating habits? Give reasons.
Ans. No, these are not healthy eating habits because burgers and potato chips'have very little nutritional value. Although, these are very tasty but can never replace regular meals that forms balanced diet and is essential for the adolescents for their normal growth and development.

Question. 17 Read the statements given below and fill up the blanks with the correct words listed in the box.
deep, ductless, nutrients, thyroxine
(i) The meal that includes all……. is a balanced diet.
(ii) Insufficient production of…….. in the tadpoles leads to their incomplete development.
(iii) Endocrine glands are also called…….. glands.
(iv) After attaining puberty, boys develop a ……voice.
Answer. (i) nutrients
(ii) thyroxine
(iii) ductless
(iv) deep

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



Answer. The circle in the figure can be completed as:



A is a girl. The ovum carrying X-chromosome has been fertilised by a sperm carrying X-chromosome, resulting a zygote with XX combination of sex chromosomes. So, the child born will be a female.
8 is a boy. In this case, the X-chromosome carrying ovum has been fertilised by a sperm carrying Y-chromosome. This results in formation of zygote with XY combination of sex chromosomes. So, the child born will be a male.

Long Answer Type Questions

Question. 19 During adolescence, the body of boys and girls undergoes certain changes. Given below are few of those changes.
(a) Broad shoulders

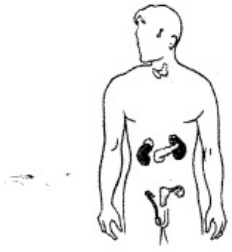
(b) Wider chests
(c) Wider region below waist
(d) Development of muscles
(e) Development of mammary glands
(f) Growth of facial hair
(g) Acne and pimples on face
(h) Development of sex organs
(i) High-pitched voice
(j) Growth of pubic hair
Categorise these changes into those that occur in boys and those that occur in girls and fill in the table given below.
Body changes during adolescence .

Boy	Girl
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

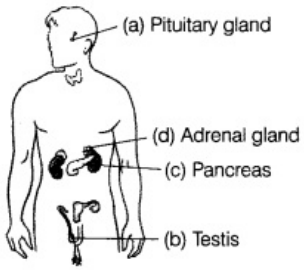
Answer. Body changes during adolescence are given below in the table:

Boy	Girl
Broad shoulders	Wider region below waist
Wider chests	Development of mammary glands
Development 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	Growth of pubic hair
Growth of pubic hair	

Question. 20 In figure, mark the positions of the endocrine glands which release the hormones that
(a) control the release of sex hormones.
(b) are responsible for the secondary sexual characters in boys.
(c) prevent diabetes.
(d) maintain the correct salt balance in the blood.



Answer. The figure with positions of the endocrine glands marked is given below:



(a) Pituitary gland It releases hormones that control the release of sex hormones, i.e. testosterone in males and oestrogen in females.

(b) Testis It releases testosterone, which is responsible for the secondary sexual characters in boys.
(c) Pancreas It releases insulin which prevents diabetes.
(d) Adrenal gland It releases aldosterone that maintains the correct salt balance in the blood.

Question. 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.

Food item	Major nutrient	Function
Pulses and nuts		
Oranges and amla		
Sugar and roti		
Oils		
Vegetables		

Answer. The food items, major nutrients and their functions are tabulated below:

Food item	Major nutrient	Function
Pulses and nuts	Proteins	Growth, repair of body cells.
Oranges and amla	Vitamin-C	Keep the body healthy by providing resistance.
Sugar and roti	Carbohydrates	Provide energy.
Oils	Fats	Provide energy.
Vegetables	Vitamins and minerals	Keeps the body healthy and disease free.

Question. 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
Answer. (a) Adrenaline is secreted from adrenal gland during the stress conditions like fright or fear, anger, worry or embarrassment. The hormone prepares the body to function at maximum efficiency by increasing the heart beat and breathing rate, raising B.R, etc.
(b) Growth hormone is secreted from pituitary gland to regulate the normal growth of a person, i.e. growth of a child to adult. Its deficiency in childhood makes a person dwarf, while its excess makes a person very tall (gigantism).
(c) Insect hormones control the development of caterpillar to moth, i.e. ' metamorphosis.
(d) Thyroxine is produced by thyroid gland to control the development of tadpole to frog. Iodine in water is necessary for its production.

Question. 23 In human females, each time during maturation and release of egg, the inner wall of uterus thickens. Is this thickening permanent? Give reasons.
Answer. No, this thickening of the uterine wall is not permanent.
If the egg gets fertilised, it begins to divide to form an embryo. The embryo gets embedded in the uterine wall resulting in pregnancy. During pregnancy, no more eggs are released and the thickened lining is discharged only when the baby is born.
However, if fertilisation does not occur, the released egg and the thickened lining of uterus along with blood vessels are shed off that resulting in menstruation.

Question. 24 John and Radha were classmates since childhood. When Radha became eleven years old, she developed a little swelling in 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?
Answer. The swelling on the neck of Radha may have been because of goitre, a condition

during which the thyroid gland produces insufficient quantity of thyroxine. However, the protrusion in John's throat would be due to Adam's apple (bulge) that is a result of growth of voice box in adolescent boys.

Question. 25 Observe the chart and graph given'in figure carefully and answer the following questions.

Age in years	% of full height	
	Boy	Girl
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?
Answer. (a) The dotted line represents the height of boys.
(b) The solid line represents the height of girls.
(c) At the omset 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.

Question. 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?
Answer. During adolescence, the secretion of sweat glands (sweat) and sebaceous glands (oil) increases. The excess oil and sweat gets collected in the tiny pores of the skin blocking them.
Bacteria grow in these blocked pores causing swelling and redness which leads to the formation of acne and pimples. Regular face wash keeps the face clean and dry and helps to reduce the pimples.

Question. 27 Our government has legalised the age for marriage in boys and girls. Give reasons asTt) why one should get married after a certain age?
Answer. In our country, the legal age for marriage is 18 years for girls and 21 years for boys. This is because teenage mothers are not prepared mentally or physically for motherhood. Early marriage and motherhood causes health problems in both mother and the child.

It also curtails employment opportunities for the young woman and may cause mental agony as she is not ready to shoulder responsibilities of motherhood.
Also, the boys before that age may not be mentally matured and financially secure enough to take the responsibilities of a family. Thus, one should get married only after a certain age.

Question. 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 these factors other than genes that can cause these variations?
Answer. Height of a child depends upon the genes inherited from parents. However, there are some other factors also that can affect height. These factors include balanced diet, hormones, exercise and diseases. Balanced diet is essential for the adolescents as it helps the bones, muscles and other parts of the body to get adequate nourishment for growth. Similarly, lack of hormones as growth hormones may lead to dwarfism.
Regular exercise is also essential for healthy muscles, bones and joints and their proper development. Lack of disease is a priority for growth that is related to other factors listed above.
Thus, height depends on combination of various factors and the absence or deficiency of any one of them can cause variations. This is why, tall parents may have short children and vice-versa.