

Reaching The Age of Adolescence

Q.1 What is the term used for secretions of endocrine glands responsible for changes taking place in the body?

Sol: The term used for secretions of endocrine glands responsible for changes taking place in the body is Hormones. Hormones are responsible for changes that takes place in our body.

Q.2 Define adolescence.

Sol: It is the age period of life. In this period a boy/girl undergoes several changes along with reproductive maturity. The period of adolescence is normally in age period of 11 to 19. This period may vary from individual to individual.

Q.3 What is menstruation? Explain.

Sol: Menstruation is a monthly process occurs in the female onset of puberty (10 to 12 years of age). In this process, the inner wall of the uterus becomes thick so as receive the fertilized egg. Every month, female's ovary releases one egg for fertilization. When the egg doesn't fertilize the uterus wall breaks down and blood vessels are broken up which leads to bleeding. This remains for 3 to 5 days in a healthy female. This process occurs every month, so this is called as menstrual cycle.

Q.4 List changes in the body that take place at puberty.

Sol: Changes in the body that take place at puberty:

- (i) Sudden increment in height and weight of the body.
- (ii) Chest broadening in boys and hips broadening in girls. These changes can be observed during puberty.
- (iii) Change in voice for girls and much deeper in boys.
- (iv) Growth of facial and pubic hair in boys, while enlargement of breast in girls is observed.
- (v) Testis starts producing mature sperms (male sex cell) while ovaries start the menstrual cycle to produce eggs (female sex cell).

Q.5 Prepare a table having two columns depicting names of endocrine glands and hormones secreted by them.

Sol:

Endocrine Gland	Hormones
Pituitary	Growth hormone
Ovaries	Oestrogen
Thyroid	Thyroxin
Adrenal	Adrenaline
Pancreas	Insulin

Q.6 What are sex hormones? Why are they named so? State their function.

Sol: The hormones which are released by the sex organs and control the formation of secondary sexual characters are known as sex hormones. The sex organs in male is testis and in female it is ovaries.

Male sex hormone testosterone is produced by Testis while female sex hormones oestrogen and progesterone are produced by ovary.

Function of testosterone: It helps to being the secondary sex characters in male such as growth of facial and pubic hairs, deepening of voice, development of reproductive organs, sudden increment in height and weight etc.

Function of Oestrogen: It helps to being the secondary sex characters in female such as breast enlargement, change in voice, development of reproductive organs, sudden increment in height and weight etc.

Q.7 Choose the correct option.

(a) Adolescents should be careful about what they eat, because

- (i) proper diet develops their brains.
- (ii) proper diet is needed for the rapid growth taking place in their body.
- (iii) adolescents feel hungry all the time.
- (iv) taste buds are well developed in teenagers.

Sol: (ii) proper diet is needed for the rapid growth taking place in their body.

(b) Reproductive age in women starts when their

- (i) menstruation starts.
- (ii) breasts start developing.
- (iii) body weight increases.
- (iv) height increases.

Sol: (i) menstruation starts.

(c) The right meal for adolescents consists of

- (i) Chips, noodles, coke.
- (ii) Chapatti, dal, vegetables.
- (iii) Rice, noodles and burger.
- (iv) Vegetable cutlets, chips and lemon drink.

Sol: (ii) Chapatti, dal, vegetables.

Q.8 Write notes on –

- (a) Adam's apple.
- (b) Secondary sexual characters.
- (c) Sex determination in the unborn baby.

Sol:

(a) Adam's apple: During the puberty, the larynx or voice box in human male tends to grow larger in size and the protruding part can be seen in their neck. Due to sex hormone, the larynx develops and the vocal chords become thicker and the male voice becomes deeper.

(b) Secondary sexual characters: These characters helps in distinguishing male and female. These characters are visible more apparently. The characters develop during the time of puberty.

In boys:

- (i) Appearance of moustache, beard, chest hair and hair.
- (ii) Deeper voice due to enlargement of voice box.

In girls:

- (i) Broaden of hips and increase in the size of the breast.
- (ii) Growth of hair at pubic and other parts of the skin.

(c) Sex determination in the unborn baby: Sex determination means whether child is a male or a female. It depends on the sex chromosome that fuses together during the fertilisation and make the zygote. Every human beings have 23 pairs (46) of chromosomes whether male or female. Out of 23 pairs, 22 pairs are the same in both male and female. Last pair of chromosome is sex chromosome. In male, sex chromosome is XY while in female sex chromosome is XX. During gamete formation, male produces two types of gametes X gamete and Y gametes while female produces two same X gametes.

During fertilization, If X gamete (given by female) fuses with X (given by male) occur the sex of child will girl. And if X gamete (given by female) fuses with Y (given by male) then sex of child will boy. Therefore, X and Y chromosome is the deciding factor for the sex of the unborn kid.

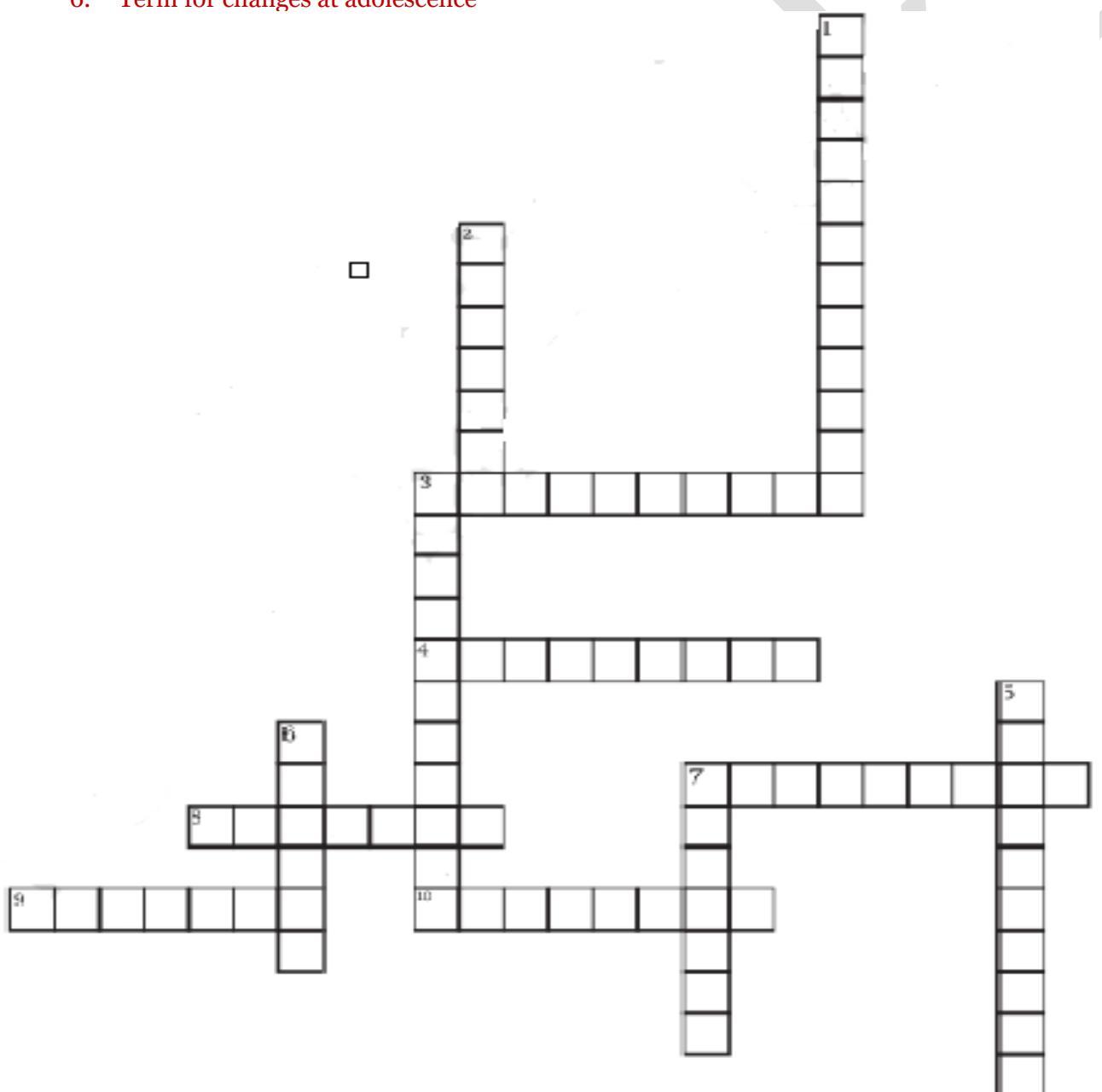
Q.9 Word game: Use the clues to work out the words.

Across

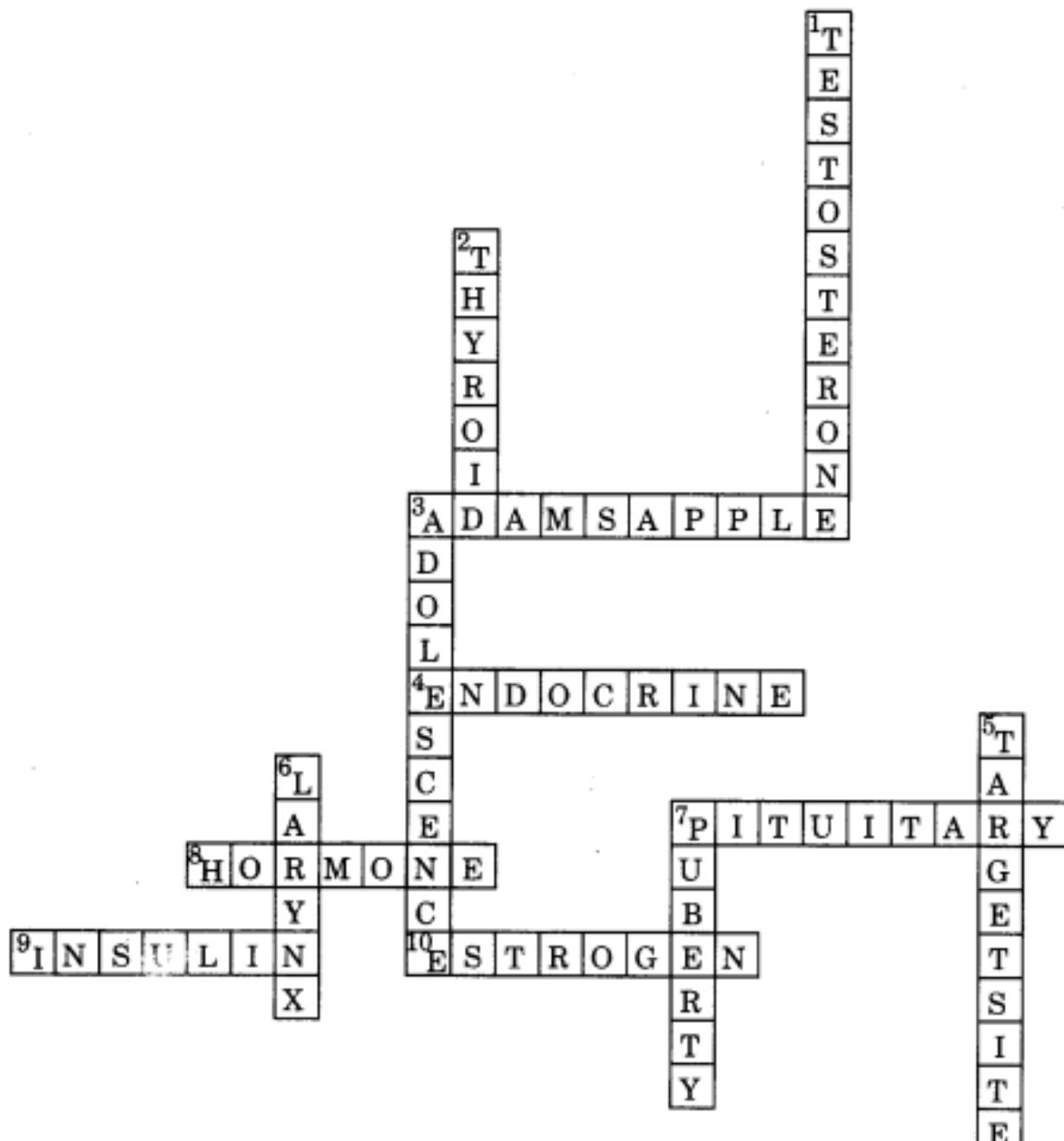
3. Protruding voice box in boys
4. Glands without ducts
7. Endocrine gland attached to brain
8. Secretion of endocrine glands
9. Pancreatic hormone
10. Female hormone

Down

1. Male hormone
2. Secretes thyroxin
3. Another term for teenage
4. Hormone reaches here through blood stream
5. Voice box
6. Term for changes at adolescence

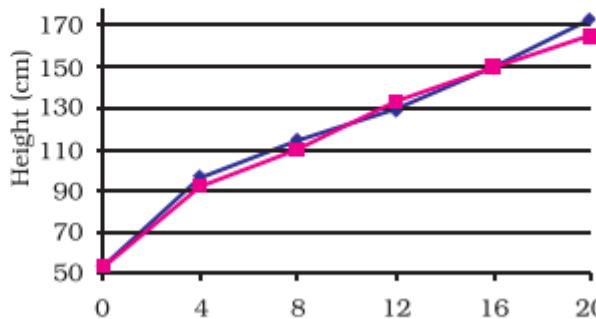


Sol:



Q.10 The table below shows the data on likely heights of boys and girls as they grow in age. Draw graphs showing height and age for both boys and girls on the same graph paper. What conclusions can be drawn from these graphs?

Age (Years)	Height (cm)	
	Boys	Girls
0	53	53
4	96	92
8	114	110
12	129	133
16	150	150
20	173	165



Sol: The graph shows the relation between the age and height of both boys and girls. We can conclude that during puberty, there is a sudden increase in height of both boys and girls. From the graph, it can be observed that initially boys grows faster than girls from 0 to 8 years. However, girls in ages 12- 16 years, their height shows a sudden increase and becomes more than boys. But both reach their maximum height at the age of 20.