

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

**Sol.** Hormone

2. Define adolescence.

**Sol.** The period during which sexual maturity takes place is called adolescence.

3. What is menstruation? Explain.

**Sol.** At the end of ovulation cycle, unfertilized egg and the thickened lining of the uterine wall are shed in fragments; along with blood; through vagina. This event is called menstruation. Menstruation happens once in every 28 to 30 days and lasts for about 4 to 7 days.

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

**Sol.** Changes which takes place at puberty are as follows:

**In Boys and Girls:** Sudden increase in height, growth of hair under armpit and in pubic area, excess secretion of sweat and oil on skin.

**In Boys:** Development of muscular body, protrusion of Adam's apple, voice becomes deep, facial hairs grow, testis begin producing sperms.

**In Girls:** Development of a rounded body, fat deposition near hip, enlargement of breasts, voice becomes thin, menstrual cycle begins.

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

**Sol.**

<i>Endocrine Gland</i>	<i>Hormone</i>
Pituitary Gland	Growth hormone, Luteinizing hormone, Follicle stimulating hormone
Thyroid Gland	Thyroxine
Pancreas	Insulin
Adrenal	Adrenaline
Testis	Testosterone
Ovaries	Oestrogen

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

**Sol.** The hormones which stimulate the production of gametes and are responsible for development of secondary sexual characters are called sex hormones. Testosterone is the sex hormone in males, while oestrogen is the sex hormone in females. Testosterone stimulates production of sperms and is responsible

for secondary sexual characters in males. Oestrogen stimulates ovulation and is responsible for secondary sexual characters in females.

7. Choose the correct option.

- (a) Adolescents should be careful about what they eat, because
- Proper diet develops their brains.
  - Proper diet is needed for the rapid growth taking place in their body.
  - Adolescents feel hungry all the time.
  - 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
- Menstruation starts.
  - Breasts start developing.
  - Body weight increases.
  - Height increases.

**Sol.** (i) Menstruation starts

(c) The right meal for adolescents consists of

- Chips, noodles, coke.
- Chapatti, dal, vegetables.
- Rice, noodles and burger.
- Vegetable cutlets, chips and lemon drink.

**Sol.** (ii) Chapatti, dal, vegetables

8. Write notes on—

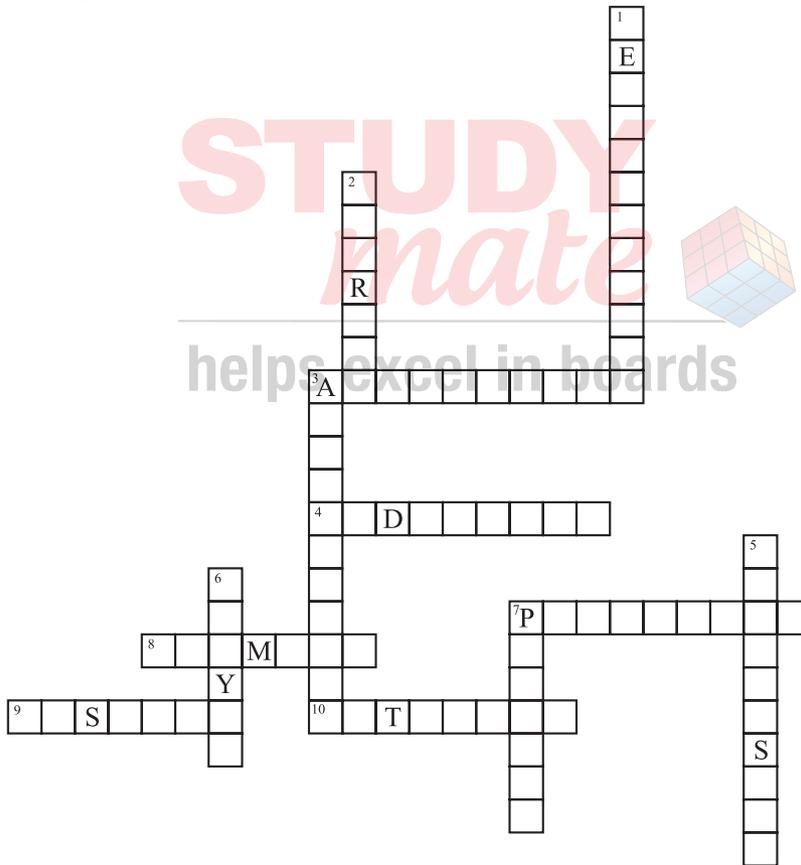
- Adam's apple.
- Secondary sexual characters.
- Sex determination in the unborn baby.

**Sol.** (a) The prominent protrusion seen in the neck of adult male is called Adam's apple. At the onset of puberty, the voice box grows in size. This is manifested by protrusion in the neck; called Adam's apple. It is one of the secondary sexual characters in males.

- (b) The characters which have no role to play in sexual reproduction but which mark sexual dimorphism in an animal are called secondary sexual characters. Sexual dimorphism is a phenomenon in which male and female of a species can be clearly segregated on the basis of certain external physical characters. Some animals; like humans, gorilla, peacock, lion, etc. show a high level of sexual dimorphism.

(c) The somatic cell in human body has 23 pairs of chromosomes. Out of them the 23rd pair contains the sex chromosomes. The 23rd pair can have two types of chromosomes, i.e. X and Y chromosomes in males but just X chromosomes in females. When sperm or egg are formed; they get half the number of chromosomes, i.e. 23 chromosomes each. As a result, the 23rd chromosome in an egg shall be X chromosome, while it can be either an X or a Y chromosome in a sperm. If a sperm; with X chromosome fertilizes the egg then the zygote will develop into a female child. If a sperm; with Y chromosome fertilizes the egg then the zygote will develop into a male child.

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 thyroxine
3. Another term for teenage
5. Hormone reaches here through blood stream
6. Voice box
7. Term for changes at adolescence

**Sol. Across:**

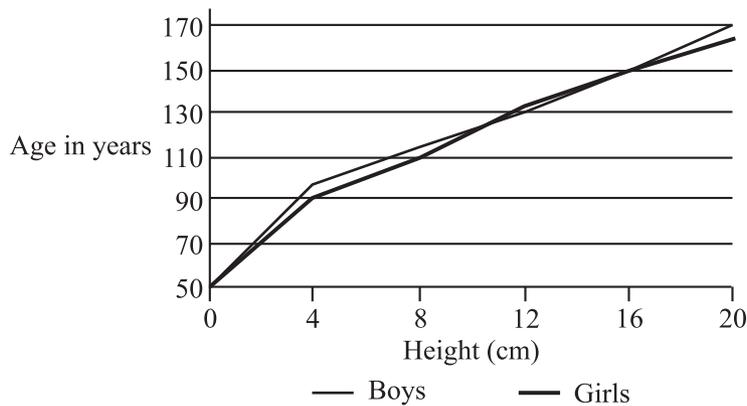
3. Adam's Apple,
7. Pituitary,
9. Insulin,
4. Endocrine,
8. Hormone,
10. Oestrogen

**Down:**

1. Testosterone,
3. Adolescent,
6. Larynx,
2. Thyroid,
5. Action Site,
7. Puberty

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?

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



**Sol.** From the given graph, following conclusions can be made:

- ❖ Growth in height is fastest till 4 years of age.
- ❖ Height grows at the same rate in boys and girls till about 16 years of age.
- ❖ Height of boys grows much faster than that of girls; between 16th and 20th years of age.

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NCERT TEXTUAL EXERCISE (SOLVED)