

## Chapter 10: Reaching the Age of Adolescence

### Multiple Choice Questions

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1. (b)
2. (d)

### Multiple Choice Questions

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1. (c)
2. (a)

### EXERCISE

#### A. Tick (✓) the correct options.

1. (c)
2. (c)
3. (b)
4. (a)
5. (d)
6. (b)
7. (c)
8. (c)
9. (c)

#### B. Fill in the blanks.

1. sperms
2. Adam's apple
3. pimples and acne
4. Pituitary
5. ovulation
6. Iodine
7. pregnancy
8. attitudinal
9. dwarf

#### C. Very Short Answer Questions.

1. Menarche
2. (a) Dwarfism (b) Gigantism
3. (a) XY (b) XX
4. 23 pairs
5. Insulin
6. Endocrine glands

#### D. Short Answer Type-I Questions.

1. Thyroxine hormone controls metamorphosis. In the absence of it, the tadpoles will not change into adult frogs.
2. The stage of growth and maturity from birth to about 2 years of age is called infancy. The stage of growth and maturity from about 2 years to 11 years is called childhood.
3. The age at which the sex hormones and sex gametes begin to be produced and a boy or a girl becomes sexually mature to reproduce is called puberty.
4. The first menstrual flow which begins at puberty in women is called menarche. The stoppage of menstrual flow at the age between 45-50 years in females is called menopause.
5. Drugs like cocaine, heroin and opium damage the nervous system and other organs of the body.

### E. Short Answer Type-II Questions.

1. Calculation of full height

$$\frac{\text{Present height (cm)}}{\% \text{ of full height at this age (given in question)}} \times 100 = \frac{120}{80} \times 100 = 150 \text{ cm}$$

2. During puberty, due to increased activity of sweat and sebaceous glands, the secretion of sweat and oil increases. Due to this, adolescents get acne and pimples on the face.

3. (a) Following are the changes Rohan is experiencing :

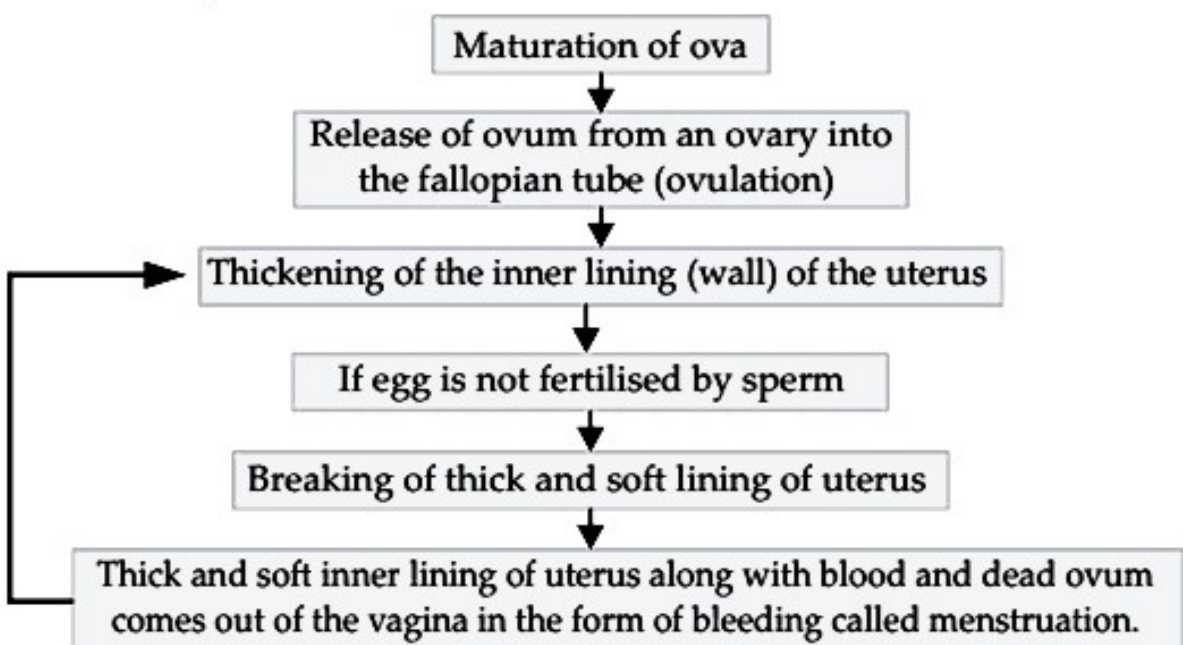
- (i) He has started giving more importance to his friends, his peer group and less importance to his parents/guardians.
- (ii) He often feels confused, has emotional outbursts, feels sad, or has strong emotions or moods that change quickly.
- (iii) He has become more independent and self-conscious .
- (iv) He has started feeling the need for acceptance and understanding.
- (v) He is frequently found to be confused between what is 'right' and what is 'wrong'.
- (vi) He feels insecure while trying to adjust to changes in the body and mind.
- (vii) He feels to get attracted towards the opposite sex.

(b) We can learn to be honest and convey what we feel, to our parents. We should seek their advice whenever we feel confused. We can learn to be caring and supportive from Rohan's father. We should always help our youngsters when they need us. We should provide them a strong mental support and right guidance.

4. Hormones are the chemical substances which coordinate the activities of living organisms and their growth.

Endocrine glands release hormones directly into the bloodstream.

5. Menstrual cycle –





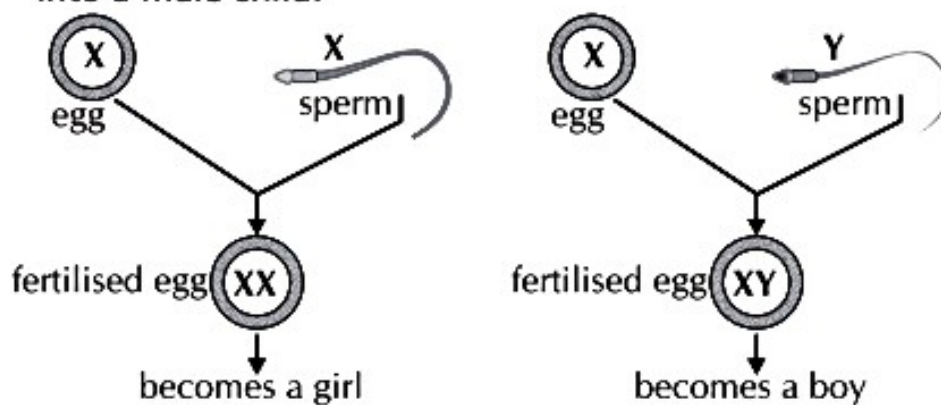
## F. Long Answer Questions.

1. All human beings have 23 pairs of chromosomes in the nucleus of their cells. Out of these 46 chromosomes, 44 are called autosomes and remaining two are called sex chromosomes. They are represented as X and Y chromosomes. In females, the cells contain two identical X chromosomes. So, the sex chromosomes in females are represented by XX.

In males, the cells contain two different chromosomes X and Y. So, the sex chromosomes in males are represented as XY.

Each gamete contains only one sex chromosome. An egg always contains X chromosome whereas a sperm may contain either X or Y chromosome.

- (i) If the sperm having X chromosome fertilises the egg, the zygote would have two X chromosomes. It will develop into a female child.
- (ii) If the sperm carrying the Y chromosome fertilises the egg, the zygote would have one X and one Y chromosome. It will develop into a male child.



Formation of a female child

Formation of a male child

2.
  - (a) **Pituitary gland:** It is located at the base of the brain. It controls the overall development or growth of the body and the development of muscles and bones.
  - (b) **Thyroid gland:** It is located in neck region below larynx. It stimulates the rate of cellular oxidation of carbohydrates, proteins and fats.
  - (c) **Pancreas:** It is located below the stomach. The hormones secreted from pancreas maintain the blood sugar level.
  - (d) **Adrenal gland:** It is located on the top of each kidney. It controls emotions like fear and anger. It also regulates blood pressure and heartbeat.
3. The sexual characters which are controlled by hormones distinguishing sexually mature males and females but are not involved in reproduction are called secondary sexual characters.

**In males—**

- (i) Hair grow on chest and face (moustache, beard, etc.).

- (ii) Body becomes more muscular.
- (iii) The voice deepens due to prominent Adam's apple.
- (iv) Testes start producing sperms.

**In females—**

- (i) Hair grow under armpits and pubic region.
- (ii) Ovaries start to release eggs.
- (iii) Menstrual cycle starts
- (iv) Development of breasts