



INDIAN SCHOOL AL WADI AL KABIR



Class: VIII	DEPARTMENT: SCIENCE 2022 - 23	DATE: 29-11-2022
WORKSHEET NO: 13 WITH ANSWERS	TOPIC: REACHING THE AGE OF ADOLESCENCE	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT	CLASS & SEC:	ROLL NO.

I. VERY SHORT ANSWERS (1M):

- 1) What is Adam's apple? [Hint: When the larynx grows larger during puberty, it sticks out at the front of the throat. The protruding part of the throat in males is called Adam's apple.]
- 2) What are hormones? [Hint: The chemical substances produced by endocrine glands are called hormones.]
- 3) What is puberty? [Hint: The period during which adolescent boys and girls reach sexual maturity and become capable of reproduction is called puberty.]
- 4) What is the relation between adolescence and puberty? [Hint: Adolescence is the period of life when a body undergoes changes leading to reproductive maturity. These changes mark the onset of puberty.]
- 5) What are the effects of increased activity of sweat and sebaceous glands? [Hint: The increased secretion of sweat and sebaceous glands in the skin causes acne and pimples on the face of young people.]
- 6) Why is it important for an adolescent to have physical exercise? [Hint: Walking and playing in fresh air keeps the body fit and healthy. All youngsters should take walks, exercise, and play outdoor games to keep themselves fit and for the proper growth and development of the body.]

- 7) What is the cause of diabetes in human beings? [Hint: The under-secretion of insulin hormone by the pancreas leads to an increase in blood glucose levels and causes diabetes in human beings.]
- 8) Define Secondary sexual characters [Hint: During puberty, many features develop in boys and girls that help to distinguish males from females, which is called secondary sexual character.]
- 9) Name the emergency hormone. Why is it called so? [Hint: Adrenaline. It helps the body to adjust to stress due to anger, worry or embarrassment.]
- 10) Why do boys have a hoarse voice at puberty? [Hint: The voice box or larynx begins to grow at the onset of puberty. This growing voice box in boys can be seen as a protruding part of the throat called Adam's apple. This leads to the voice becoming hoarse.]

For questions numbers 11, 12, and 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below.

i) Both A and R are true and R is the correct explanation of the assertion.

ii) Both A and R are true but R is not the correct explanation of the assertion.

iii) A is true but R is false.

iv) A is false but R is true

11) **Assertion-** Mother is not completely responsible for the sex of the child.

Reason- The child gets one sex chromosome from the mother and another from the father.

[Hint: Both assertion and reason are correct statements, and the reason is the correct explanation of the assertion.]

12) **Assertion-** If the water in which tadpoles are growing does not contain sufficient iodine, the tadpoles cannot become adults.

Reason- The metamorphosis of frogs is controlled by thyroxine hormone and iodine is needed for the production of thyroxine.

[Hint: Both assertion and reason are correct statements, and the reason is the correct explanation of the assertion.]

13) **Assertion-** Most teenagers suffer from acne and pimples.

Reason- It is due to the increased activity of Thyroid glands during adolescence.

[Hint: Assertion is true but the reason is false.]

II.PASSAGE-BASED QUESTIONS

The changes which occur during adolescence in the human body are controlled by hormones. Hormones are secreted by glands called ductless glands or endocrine glands. The hormones are poured by the endocrine gland directly into the bloodstream. Endocrine glands include pituitary glands, thyroid glands, pancreas, and adrenal. The pituitary gland is also called the master gland because it controls the activities of other glands. In insects, metamorphosis is controlled by insect hormones. In the case of frogs, it is controlled by thyroxine hormones. When a person is suffering from sugar problems, it means that his pancreas is not producing sufficient quantities of insulin hormone.

- i. What are hormones? [Hormones are chemicals secreted by the endocrine glands that coordinate certain functions of the body]
- ii. Which gland is also called the master gland and why? [The pituitary gland is also called the master gland because it controls the activities of other glands.]
- iii. Name the hormone which controls metamorphosis in frogs. [Thyroxine]
- iv. What is the role of the pancreas in a diabetic patient? [Pancreas secrete insulin hormone which regulates the blood sugar level]

III. CASE STUDY-BASED QUESTIONS

1. 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 in 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.

a) Can you think of any reasons for the difference in diagnosis?

- i) Puberty
- ii) Prematurity
- iii) Post adolescence
- iv) ageing

b) What change occurs in females at puberty?

- i) development of a large voice box
- ii) development of hair on the face and chest
- iii) region below the waist becomes wider
- iv) broad shoulders

c) When does adolescence begin and end respectively?

- i) begins at the age of 9 and ends at the age of 14
- ii) begins at the age of 11 and ends at the age of 18
- iii) begins at the age of 15 and ends at the age of 11
- iv) begins at the age of 18 and ends at the age of 13

- d) Adam's apple is:
- i) enlarged larynx
 - ii) mammary glands
 - iii) apple of Adam
 - iv) red apple

IV. a) SHORT ANSWER TYPE QUESTIONS (2 M):

- 1) What is adolescence? Why is adolescence also called teenagers?
[Hint: The period of life, when the body undergoes changes, leading to reproductive maturity is known as adolescence. Generally, adolescence begins at the age of 11 and lasts up to 18 or 19 years of age. Adolescents are also called teenagers because they cover the period of the 'teens' i.e. 13 to 18 or 19 years of age.]
- 2) Do both boys and girls grow at the same rate?
[Hint: Girls grow faster than boys but by about 18 years of age, both reach their maximum height. The rate of growth in height varies in different individuals.]
- 3) Mention the changes observed in adolescents with respect to:
- a) Physical appearance
[Hint: In boys, at the age of puberty, shoulders generally broaden as a result of growth. In boys, the muscles of the body grow more prominently than in girls. In girls, the region below the waist becomes wider. The muscles also comparatively grow less.]
 - b) Voice pattern
[Hint: Boys develop larger voice boxes (Larynx) to form a protruding part of the throat called Adam's Apple. Boys have deep voices or low-pitched voices. In Girls, the larynx is hardly visible (Adam's apple is not visible). They have a high-pitched voice.]
- 4) What are secondary sexual characters? Write the secondary sexual characters found in both boys and girls at the onset of puberty.
[Hint: The characters that help in distinguishing the males from the females are called secondary sexual characters.
Secondary Sexual Characters in Boys: Facial hair, deep voice, and hair on the chest.
Secondary Sexual Characters in Girls: high-pitched voice and growth of body hair.]

- 5) Define the following terms- a. Menstruation b. Menarche c. Menopause
[Hint: **Menstruation** The breakdown and removal of the inner thick and soft lining of the uterus along with its blood vessels in the form of vaginal bleeding are called **Menstrual** flow or **menstruation** or periods.
Menarche: The first menstrual flow which begins at puberty is known as menarche.
Menopause: At 45 to 50 years of age, the menstruation cycle stops. Stopping menstruation is known as menopause.]
- 6) What are hormones? Mention their role in initiating reproductive function.
[Hint: Hormones are chemical substances secreted in endocrine glands. They are also known as ductless glands. Hormones control the changes that occur during adolescence. The male hormone called testosterone is secreted by the testes at the onset of puberty and causes the development of facial hair, chest hair, etc. At the onset of puberty in girls, ovaries secrete female hormone or estrogen which makes the breast develop.]
- 7) During adolescence females have a very high-pitched voice while males have a deeper voice. Why?
[Hint: Boys develop larger voice boxes (Larynx). Hence have a deeper voice. In females, the larynx is hardly visible. Hence they have a high-pitched voice.]

IV. b) SHORT ANSWER TYPE QUESTIONS (3 M):

- 1) In human females, each time during maturation and release of an egg the inner wall of the uterus thickens. Is this thickening permanent? Give reasons.
[Hint- No, this thickening of the uterine wall is not permanent. If the egg gets fertilised, it starts developing and gets embedded in the uterine wall resulting in pregnancy. However, if fertilisation does not occur, the released egg and the thickened lining are shed off resulting in menstruation.]
- 2) Why are adolescents advised to maintain proper personal hygiene?
[Hint: Proper personal hygiene is more necessary for teenagers because the increased activity of sweat glands makes the body smelly. So, a daily bath is necessary. If all body parts are not washed or cleaned every day, the chances of bacterial infection are more. Girls should take special care of cleanliness during the time of menstrual flow.]
- 3) What is meant by metamorphosis? What is the role of hormones in the metamorphosis of frogs?
[Hint: The change from larva to adult is called metamorphosis. In frogs, the metamorphosis from tadpole to adult frog is controlled by thyroxine hormone which is produced by the thyroid gland. Thyroxine production requires the presence of iodine in water.]

- 4) Why should adolescents have a balanced diet?

[Hint: Adolescence is a period of rapid development and growth. A regular healthy diet is required to achieve optimum physical, mental, emotional, and psychological wellness. As a result, an adolescent's nutrition must be carefully planned. A balanced diet is one in which the proteins, carbohydrates, fats, and vitamins are all present in the proper quantities.]

V.LONG ANSWER TYPE QUESTIONS (5 M):

- 1) Write a short note on the sex determination of an unborn baby.

[Hint: All human beings have 23 pairs of chromosomes in the nuclei of their cells. Two chromosomes out of these are the sex chromosomes known as X and Y. A female has two X chromosomes whereas a male has one X and one Y chromosome. The sex of the unborn child depends on whether the zygote has XX or XY chromosomes.

- If a sperm with an X chromosome fertilises the egg, the zygote thus formed will lead to the birth of a girl child.
- If a sperm with a Y chromosome fertilises the egg, the zygote thus formed will lead to the birth of a male child]

- 2) Why is it important for adolescents to have a balanced diet?

[Hint: Adolescence is a stage of rapid growth and development. Hence, a balanced diet is very important at this stage. Here, a balanced diet means that the meals should include proteins, carbohydrates, fats, minerals, and vitamins in requisite proportion.]

- 3) Salma had 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?

[Hint- During adolescence, the secretion of sweat glands and sebaceous glands increases leading to the formation of acne and pimples. Regular face wash keeps the face clean and dry and helps to reduce pimples.]

- 4) State the importance of:

- a) Insulin
- b) Thyroxine
- c) Adrenaline
- d) Estrogen
- e) Testosterone.

[Hint: a) Insulin. Maintain the levels of blood sugar. Lack of insulin can lead to a condition called diabetes.

b. Thyroxine. Required for regulating body metabolism. Lack of thyroxine causes goitre.

- c. Adrenaline. Helps the body to adjust to stress due to anger, worry or embarrassment.
- d. Oestrogen: Makes the breast develop, wider hips, etc.
- e. Testosterone: Cause development of facial hair, chest hair, etc.]

5) 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

[Hint: a) Adrenaline is secreted from the adrenal gland during stress conditions like fright or fear, anger, worry, or embarrassment. The hormone prepares the body to function at maximum efficiency by increasing the heartbeat and breathing rate etc.

(b) Growth hormone is secreted from the pituitary gland to regulate the normal growth of a person, i.e. growth of a child to an 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 caterpillars to moths, i.e. metamorphosis.

(d) Thyroxine is produced by the thyroid gland to control the development of tadpoles to frogs. Iodine in water is necessary for its production.]

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