

**NCERT Solutions For Class 12 Biology Chapter 2:** The NCERT Solutions for Class 12 Biology Chapter 2 Human Reproduction explain how humans reproduce and ensure the continuation of life.

This chapter includes topics like the male and female reproductive systems, how sperm and eggs are formed, the menstrual cycle, fertilization, the development of the embryo, pregnancy, and childbirth. The solutions are written in a simple and easy-to-understand way, helping students learn difficult concepts step by step. These solutions are useful for preparing for exams and understanding the important processes involved in human reproduction.

## **NCERT Solutions For Class 12 Biology Chapter 2 Overview**

Chapter 2 of Class 12 Biology Human Reproduction explains the biological processes involved in the reproduction and continuation of the human species. The chapter provides a detailed explanation of the male and female reproductive systems, including their structure and functions.

### **Male Reproductive System:**

- It consists of organs like the testes (produce sperm), epididymis (stores sperm), vas deferens, and accessory glands.
- The structure of sperm and the process of spermatogenesis are discussed.

### **Female Reproductive System:**

- The female system includes the ovaries (produce eggs), fallopian tubes, uterus, and vagina.
- Details of oogenesis (formation of ova) and the menstrual cycle are provided, emphasizing the hormonal control of reproductive processes.

### **Fertilization and Embryo Development:**

- Fertilization occurs when sperm meets the egg, usually in the fallopian tube.
- Post-fertilization events include zygote formation, cleavage, blastocyst development, and implantation in the uterus.
- The stages of embryonic development, including the formation of organs and tissues, are explained.

### **Pregnancy and Childbirth:**

- The chapter describes how the embryo develops into a fetus and the role of the placenta in providing nutrients and oxygen.

- The process of parturition (childbirth) and the hormonal changes during labor are also covered.

#### **Lactation:**

- It explains the production of milk in the mammary glands and its importance in providing nutrition to the newborn.

## **NCERT Solutions For Class 12 Biology Chapter 2 PDF**

The detailed NCERT Solutions for Class 12 Biology Chapter 2 Human Reproduction are available in PDF format for easy access. These solutions provide a clear and step-by-step explanation of all the concepts covered in the chapter, such as the male and female reproductive systems, gametogenesis, fertilization, and embryonic development.

The PDF is created to help students grasp the subject effectively helping in thorough preparation for exams. To download the solutions, click on the link provided below and enhance your understanding of this important topic.

### **NCERT Solutions For Class 12 Biology Chapter 2 PDF**

## **NCERT Solutions for Class 12 Biology Chapter 2 Human Reproduction**

Here are the NCERT Solutions for Class 12 Biology Chapter Chapter 2 Human Reproduction:

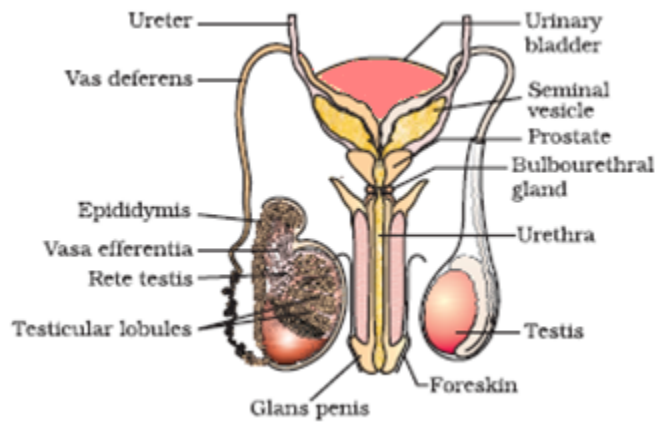
### **Exercise: Reproductive System**

#### **1. Fill in the blanks:**

- Humans reproduce **sexually**.
- Humans are **viviparous**.
- Fertilisation is **internal** in humans.
- Male and female gametes are **haploid**.
- Zygote is **diploid**.
- The process of release of ovum from a mature follicle is called **ovulation**.
- Ovulation is induced by a hormone called **luteinising hormone (LH)**.
- The fusion of male and female gametes is called **fertilisation**.
- Fertilisation takes place in the **ampulla of the oviduct**.
- Zygote divides to form a **blastocyst**, which is implanted in the uterus.
- The structure which provides a vascular connection between the foetus and uterus is called the **placenta**.

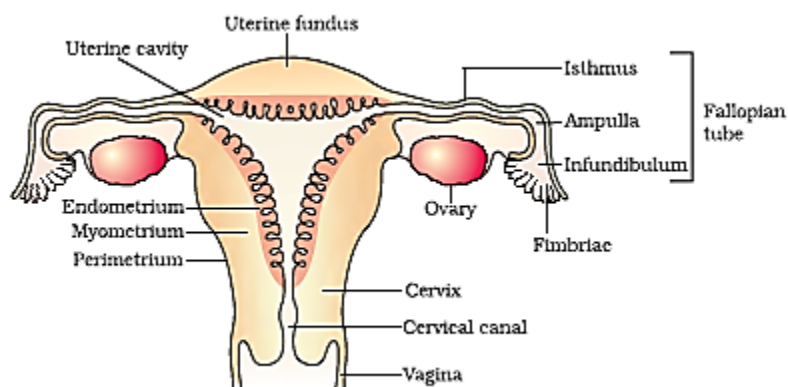
#### **2. Draw a labelled diagram of the male reproductive system.**

Ans-



**3. Draw a labelled diagram of the female reproductive system.**

Ans-



**4. Write two major functions, each of the testis and ovary.**

Ans-

**Testis:**

- Produces sperms through the process of spermatogenesis in the seminiferous tubules.
- Secretes testosterone, the male sex hormone.

**Ovary:**

- Produces ova through the process of oogenesis.
- Secretes female sex hormones, estrogen and progesterone.

**5. Describe the structure of a seminiferous tubule.**

Ans-

Seminiferous tubules are highly coiled structures located inside the testicular lobules. They are lined with germinal epithelium and consist of:

- **Sertoli cells:** Support and nourish the developing sperm.
- **Spermatogonia:** Male germ cells that undergo meiotic divisions to form spermatids and eventually mature spermatozoa.
- **Leydig cells:** Located outside the tubules, they produce testosterone.

## 6. What is spermatogenesis?

Ans-

Spermatogenesis is the process of sperm production from spermatogonia in the seminiferous tubules. It involves:

1. Transformation of diploid spermatogonia into primary spermatocytes.
2. Meiotic divisions resulting in haploid spermatids.
3. Maturation of spermatids into motile spermatozoa.

## 7. Name the hormones involved in the regulation of spermatogenesis.

Ans-

- Luteinising hormone (LH): Stimulates Leydig cells to produce androgens.
- Follicle-stimulating hormone (FSH): Stimulates Sertoli cells for spermiogenesis.
- Gonadotropin-releasing hormone (GnRH): Stimulates the release of LH and FSH.
- Androgens: Regulate spermatogenesis.

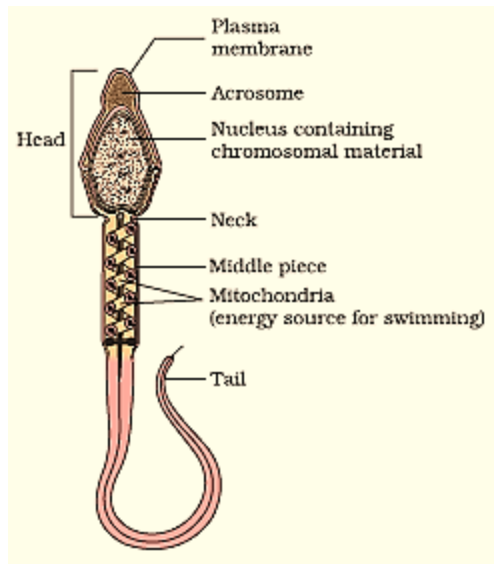
## 8. Define spermiogenesis and spermiation.

Ans-

- **Spermiogenesis:** The transformation of spermatids into mature, motile spermatozoa.
- **Spermiation:** The release of mature spermatozoa from Sertoli cells into the lumen of seminiferous tubules.

## 9. Draw a labelled diagram of sperm.

Ans-



#### 10. What are the major components of seminal plasma?

Ans-

- Secretions from accessory glands (prostate gland, seminal vesicles, bulbourethral glands).
- Contains calcium, fructose, and enzymes essential for sperm mobility and survival.

#### 11. What are the major functions of male accessory ducts and glands?

Ans-

- **Ducts:**
  - **Vasa efferentia:** Transports sperms to the epididymis.
  - **Epididymis:** Stores and matures sperms.
  - **Vas deferens:** Conducts sperms to the urethra.
- **Glands:**
  - **Seminal vesicles:** Secrete fructose-rich fluid for sperm energy.
  - **Prostate gland:** Produces alkaline fluid to enhance sperm motility.
  - **Bulbourethral glands:** Neutralize acidity and lubricate the urethra.

#### 12. What is oogenesis?

Ans-

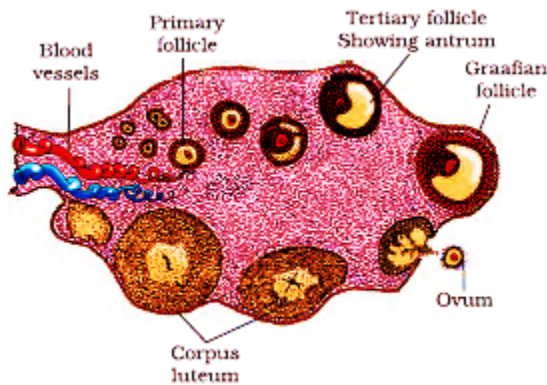
Oogenesis is the process of ova formation in the ovary. It includes:

1. Multiplication of oogonia.
2. Growth of a primary oocyte surrounded by follicular cells.

3. Maturation leading to the formation of one ovum and polar bodies through meiotic divisions.

**13. Draw a labelled diagram of an ovary section.**

Ans-



**14. Mention the functions of the following:**

- (a) Corpus luteum – **Progesterone**
- (b) Endometrium – **Implantation**
- (c) Acrosome – **Fertilization**
- (d) Sperm tail – **Movement**
- (e) Fimbriae – **Ovulation**

Ans-

(a) **Corpus luteum** – Secretes **progesterone** to prepare and maintain the uterine lining for implantation.

(b) **Endometrium** – Innermost uterine lining that undergoes cyclic changes to support **embryo implantation**.

(c) **Acrosome** – Contains enzymes that help the sperm penetrate the **egg membrane** during fertilization.

(d) **Sperm tail** – Facilitates **movement** of the sperm within the female reproductive tract.

(e) **Fimbriae** – Finger-like projections near the ovary that help **collect the ovum** after ovulation.

**15. Identify True/False statements.**

- (a) Androgens are produced by Sertoli cells. – **False**
- (b) Spermatozoa get nutrition from Sertoli cells. – **True**
- (c) Leydig cells are found in the ovary. – **False**

- (d) Leydig cells synthesise androgens. – **True**  
(e) Oogenesis takes place in the corpus luteum. – **False**  
(f) Menstrual cycle ceases during pregnancy. – **True**  
(g) Presence or absence of a hymen is not a reliable indicator of virginity or sexual experience.  
– **True**

### 16. What is the menstrual cycle? Which hormones regulate the menstrual cycle?

Ans-

The **menstrual cycle** is a series of cyclic physiological changes in the female reproductive system, lasting about **28 days**. It prepares the uterus for **implantation** and, in the absence of fertilization, results in **menses**—the shedding of the uterine lining.

#### Hormones Regulating the Menstrual Cycle:

1. **Follicle-Stimulating Hormone (FSH):** Stimulates the development of ovarian follicles.
2. **Luteinizing Hormone (LH):** Triggers ovulation and formation of the corpus luteum.
3. **Estrogen:** Promotes follicle growth and thickening of the uterine lining.
4. **Progesterone:** Prepares and maintains the endometrium for implantation and suppresses further ovulation.

## Benefits of Solving NCERT Solutions For Class 12 Biology Chapter 2

- **Clear Understanding of Concepts:** It helps students understand the complex physiological processes involved in human reproduction, such as gametogenesis, fertilization, and pregnancy.
- **Improved Exam Preparation:** Practicing NCERT solutions helps students become familiar with the type of questions likely to appear in the exams, improving their performance.
- **Better Retention:** The solutions break down concepts into simpler steps, aiding better retention and recall of important topics like the menstrual cycle, oogenesis, spermatogenesis, and parturition.
- **Clarifies Doubts:** If students find any part of the chapter difficult, the solutions provide a detailed and structured approach to resolve their doubts effectively.
- **Concept Application:** By solving these questions, students learn how to apply theoretical knowledge to real-life scenarios making the concepts more relatable and easier to grasp.
- **Time Management:** Regular practice helps in time management, enabling students to answer questions efficiently within the time limit during exams.
- **Foundation for Future Learning:** The chapter provides foundational knowledge on human reproduction, which is essential for understanding advanced topics in biology and related fields.

- **Boosts Confidence:** Regular practice and understanding of solutions increase confidence, helping students perform better in tests and competitive exams.