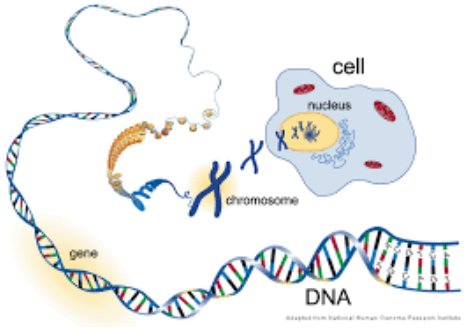
Chapter 8

How do Organisms Reproduce ?

DNA

Q. a. Expand the term 'DNA'.

Ans. (a) Deoxyribo nucleic acid.



(b) Name the part of the cell where it is located ?

(b) In the nucleus of the cell.

(c) Explain its utility in the process of reproduction of the cell.

(c)
- DNA in the cell nucleus is the information source for making proteins.
- If information provided by DNA is changed, different proteins will be made.
- Different proteins will lead to different body design.

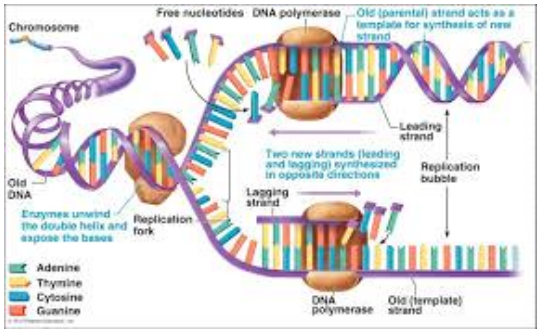
NCERT

Q. What is the importance of DNA copying in reproduction ?

Ans. DNA copying in reproduction is important for maintaining a body design and features.

But DNA copying is not accurate which leads to variation.

- Variation becomes the basis for evolution.



NCERT

Q. Why is variation beneficial to the species but not necessarily for the individual ?

Ans.

Modes of Asexual Reproduction

Asexual Reproduction :- It is the method of reproduction in which new organisms are produced from a single parent.

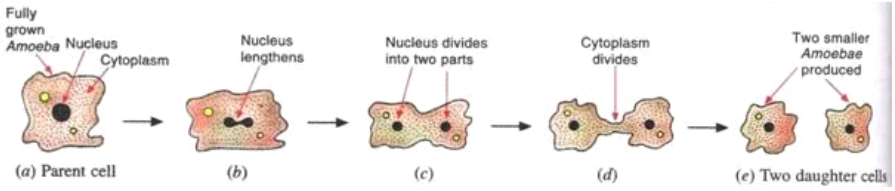
Modes of Asexual Reproduction :- **2013**

- **(i) Fission**
  - **Binary Fission** → Amoeba, Leishmania
  - **Multiple Fission** → Plasmodium
- **(ii) Fragmentation** → Spirogyra
- **(iii) Regeneration** → Planaria
- **(iv) Budding** → Hydra, Yeast
- **(v) Vegetative propagation** → Bryophyllum, Potato, Rose
- **(vi) Spore formation** → Rhizopus fungus (bread mould)

Binary fission in Amoeba

Q. Name the process by which an amoeba reproduces. Draw the various stages of its reproduction in a proper sequence.

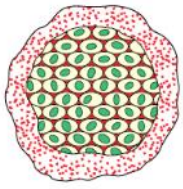
Ans. Binary fission



Binary Fission in Amoeba

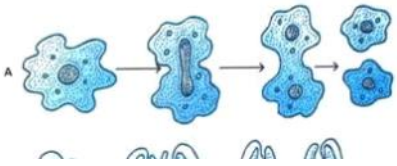
Difference between Binary and Multiple Fission

Q. Differentiate between binary and multiple fissions for reproduction. Give one example of each.

Ans.	Binary fission	Multiple fission
	1. Two daughter cells are formed.	1. Many daughter cells are formed.
	2. Nucleus divides only once.	2. Nucleus divides many times.
	3. Cytoplasm divides after every nucleus division.	3. Cytoplasm does not divide after every nucleus division.
	Example – Amoeba  **Figure 8.1 (a)** Binary fission in Amoeba	Example – Plasmodium 

Q. Differentiate between binary fission in amoeba and leishmania.

Ans.	Amoeba	Leishmania
	1. Division takes place at any plane.	1. Division takes place from a specific orientation.



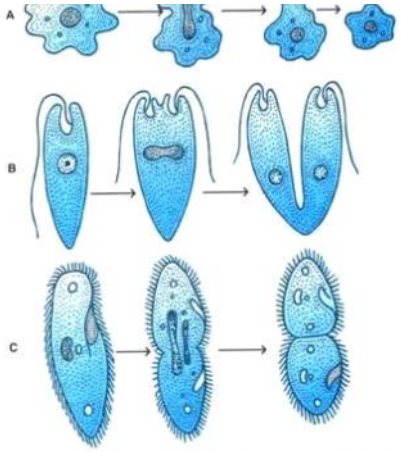
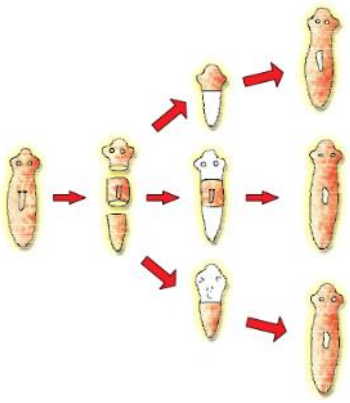


Fig. 1.3. Types of Binary fission in Protozoan.s. **A.** Irregular in *Amoeba;* **B.** Longitudinal in *Euglena;* **C.** Transverse in *Paramecium.*

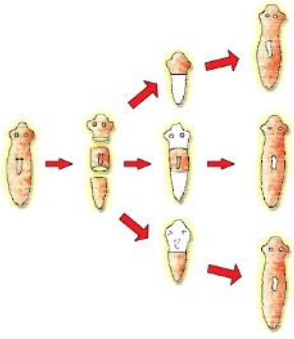
Regeneration in Planaria



Q. Explain how planaria reproduces asexually ?

Ans. Planaria reproduces asexually by Regeneration.

- **Regeneration :-** is the process in which organism regenerates its lost parts by the help of special cells.
- These cells proliferate and make large number of cells which undergo changes to form tissues and then organs.
- For example, when planaria cut into pieces each piece regenerates its lost parts.



Fragmentation in Spirogyra

Q. In the process of reproduction by spirogyra, the organism splits itself into small pieces.
(a) What is this process of reproduction called ?
(b) Is this type of reproduction asexual or sexual, answer with reason.
(c) Is this type of reproduction is same as regeneration ? Give reason.

Ans. (a) Fragmentation.

(b) It is asexual reproduction, because a single parent is capable to give rise to new organism.

(c) No, it is not same as regeneration. In regeneration, organism regenerates its lost parts, while in fragmentation, organism break into two or more pieces and each piece grows into a new individual.

Q. Distinguish between fission and fragmentation giving one example each.

Ans.

Fission	Fragmentation
1) It takes place in unicellular organisms like amoeba, leishmania etc.	1) It takes place in multicellular organisms like spirogyra having simple body organisation.
2) The cell divides into two (binary fission) or many (multiple fission) new cells directly after division of nucleus and cytoplasm.	2) The body of multicellular organism divides into two or more parts which grow independently as new organisms.

Figure 8.1(a) Binary fission in Amoeba

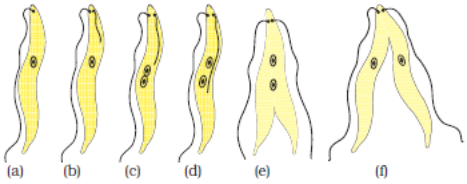


Figure 8.1(b) Binary fission in Letshmania

Q. Define the following processes used as a method of reproduction.

(a) Fragmentation (b) Vegetative propagation

(b) Self- pollination

Vegetative propagation

Q. Define vegetative propagation.

Ans. **Vegetative propagation :-** It is a method of asexual reproduction in which new plants develop from vegetative parts like stem, roots & leaves.

Q. Explain the different methods of vegetative propagation with examples.

By stem :-

By roots :-

By leaves :-

Q. What are the advantages of vegetative propagation.

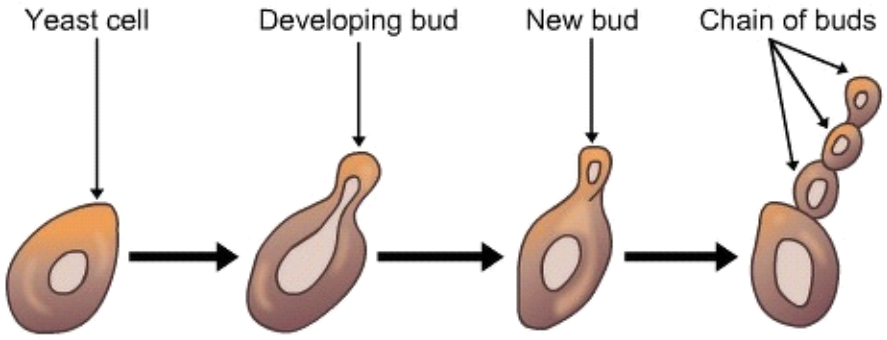
Ans. 1.) Plants produce by this method are able to bear flowers and fruits earlier than those produce by seeds.

2.) It help in propagation of those plants which lose the capacity of producing seeds.

3.) Plants produce by this method are genetically similar enough to the parent plant that they have all its characteristics.

Budding in Yeast

Q. A student is viewing under a microscope a permanent slide showing various stages of asexual reproduction by budding in yeast. Draw diagrams of what he observes in proper sequence.



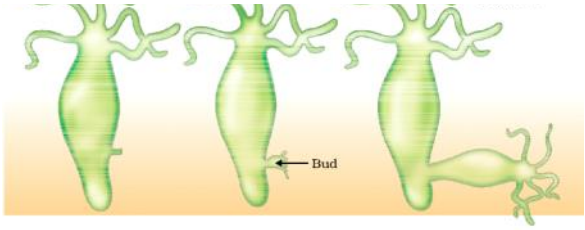
Q. (a) Define budding.
(b) Which organism uses the above method of asexual reproduction ?
(c) How do the newly formed buds develop into independent individuals ?

Ans. (a) **Budding :-** It is a method of asexual reproduction in which a small outgrowth develops on the parent body which grows into a new individual.

(b) Hydra

(c) This bud grows into a tiny hydra by developing a mouth and tentacles and when fully mature, it detaches from parent body.

tentacles and when fully mature, it detaches from parent body



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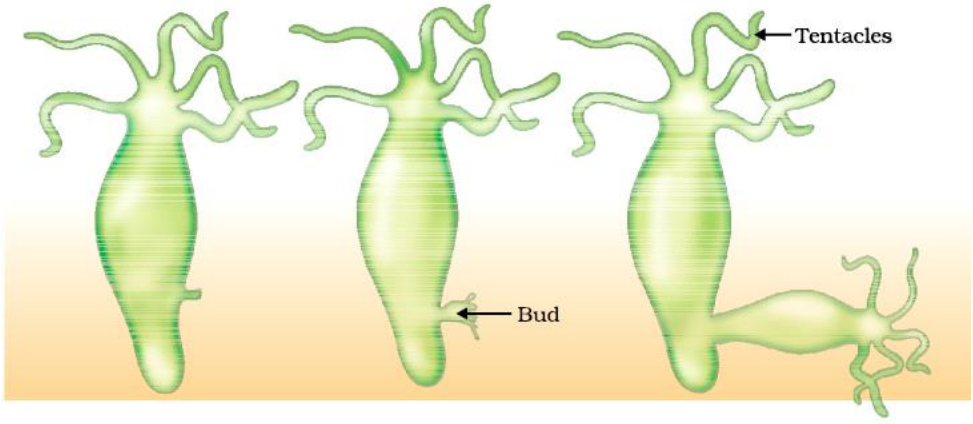
Q. A student observed a permanent slide showing asexual reproduction in hydra. Draw a labelled diagram in proper sequence of the observations that must have been made by the student. Name the process of reproduction also.

Ans. Budding



Pollination in Plants

Q. Define unisexual flower and bisexual flower giving one example of each.

Ans. **Unisexual flower :-** Those flowers which have either male or female reproductive part.

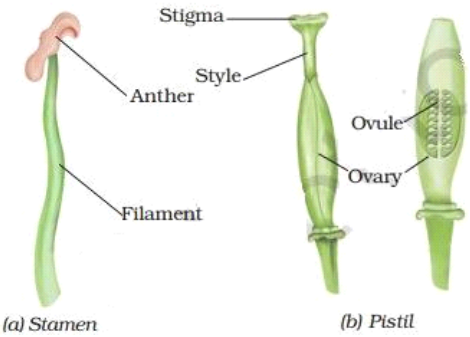
Example :- Papaya , Watermelon

Bisexual flower :- Those flowers which have both male and female reproductive parts.

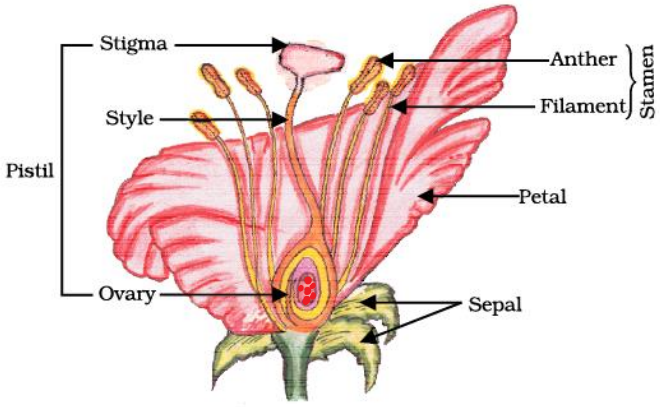
Example :- Hibiscus , Mustard.

Q. What are the male and female reproductive parts of flower.

Ans. **Male reproductive part :-** Stamen

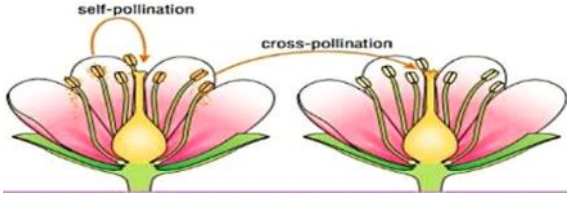


Female reproductive part :- Carpel or Pistil



Q. Define pollination. Explain the types of pollination ?

Ans. **Pollination :-** is the process of transfer of pollen grains from anther to the stigma **2013**



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Self - Pollination :- is the process of transfer of pollen grains from anther to the stigma of the same flower or another flower of the same plant.

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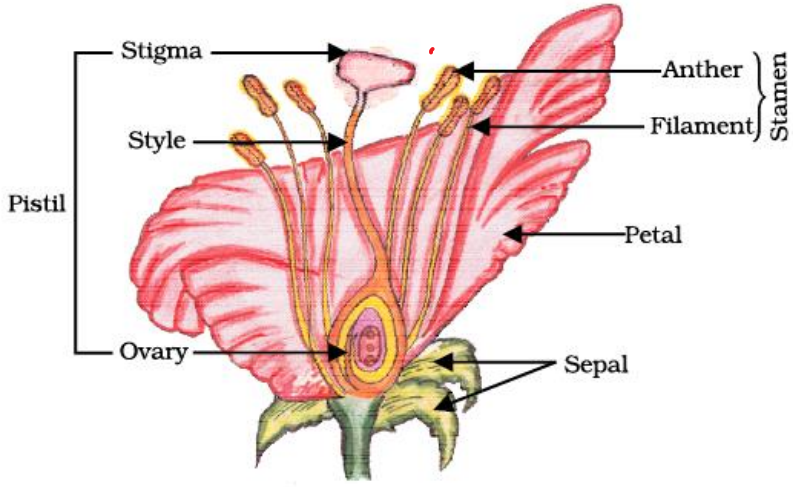
Cross - Pollination :- is the process of transfer of pollen grains from anther to the stigma of another flower of the another plant.

Reproduction in Plants

Q. Draw the longitudinal section of flower.

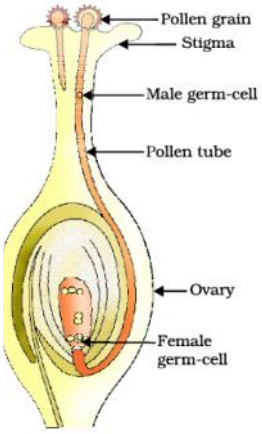
Ans.

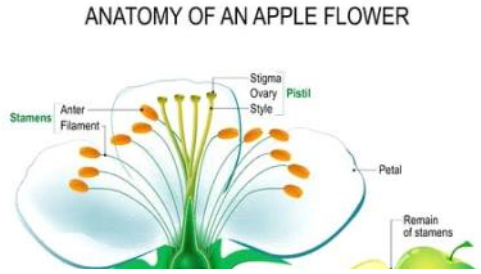


Q. What do you understand by fertilisation ? After fertilisation, name the part of the flower which develops into : (a) Fruit (b) Seed

Ans. Fertilisation :- It is the fusion of male and female gamete give rise to zygote.

2013

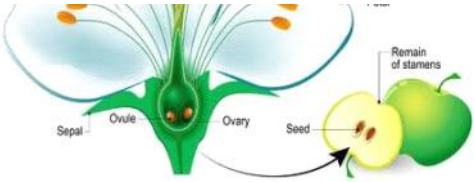




After Fertilisation :-

(a) Ovary develops into fruit.

(b) Ovules develop into seed



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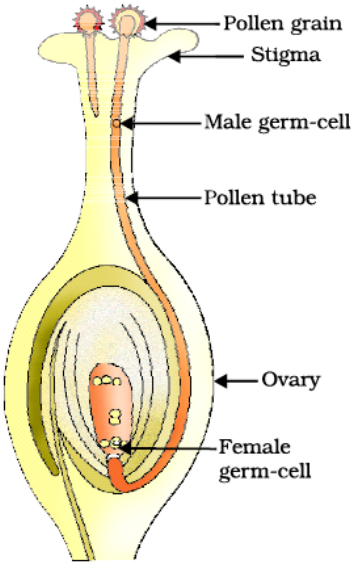
Q. Draw a diagram to show germination of pollen tube on stigma. Label the following :
(a) part which receives the pollen grain.
(b) part where fertilisation takes place.

Ans. (a) Stigma.

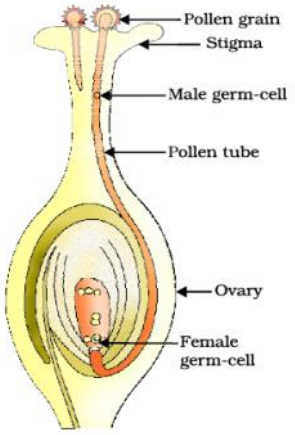
(b) Ovary.



Germination of pollen tube on stigma

Q. Explain how fertilisation takes place in flower.

Ans.

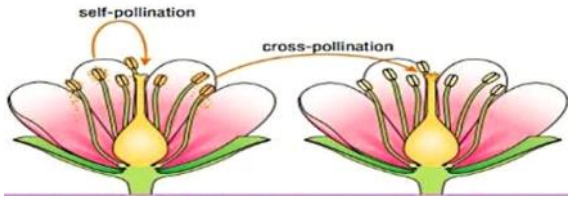


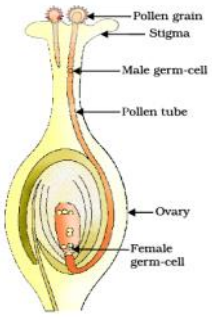
NCERT

Q. How is the process of pollination different from fertilisation ?

Ans.

Pollination	Fertilisation
1. It is the transfer of pollen grains from anther to stigma.	1. It is the fusion of male and female gametes.
2. It is a physical process.	2. It is a biological process.
3. It takes place only in plants.	3. It takes place in both plants and animals.



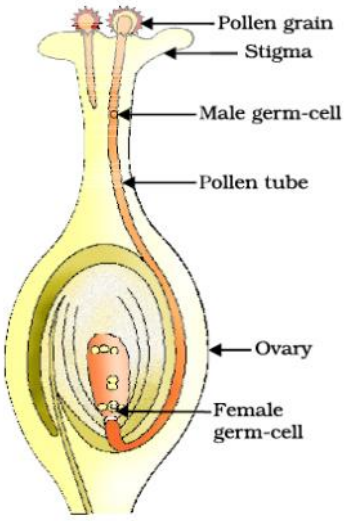


2019

Q. Mention the site of fertilisation and product of fertilisation.

Ans. **Site of fertilisation :** Ovary

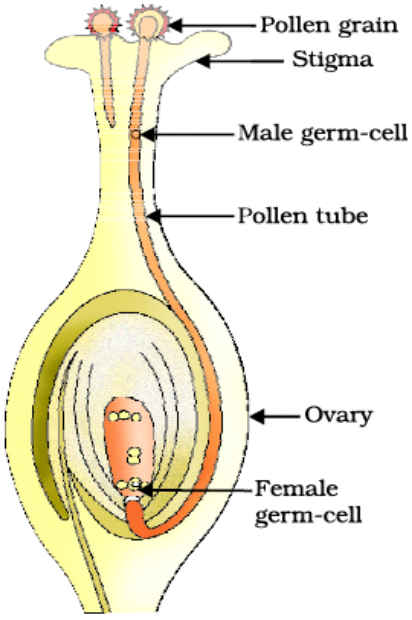
Product of fertilisation : Zygote



2019

Q. Draw a labelled diagram of a pistil showing the following parts :
Stigma , Style , Ovary , Female germ cell

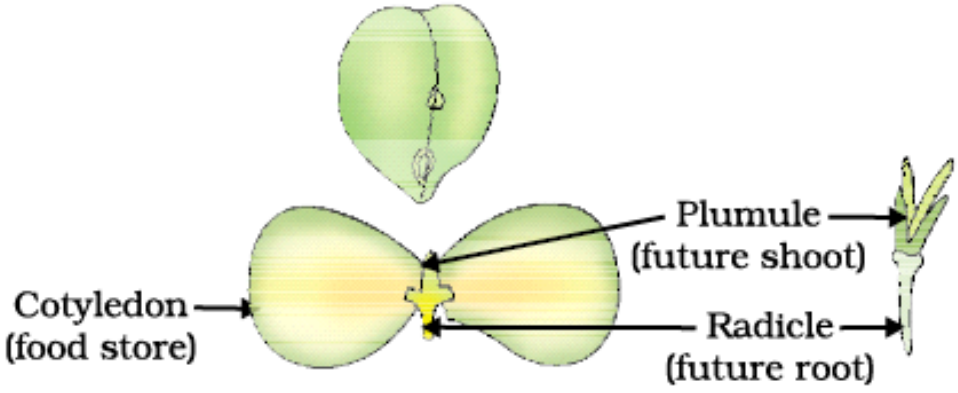
Ans.



2019

Q. Draw labelled diagram to show the following parts in an embryo of a pea seed :

Ans.



Sexual Reproduction

Q. List three advantages of sexual reproduction.

Ans. (i) Sexual reproduction promotes diversity

(ii) It result in new combination of genes which cause variation.

(iii) It plays an important role in the origin of new species.

2013

Q. Explain why variations are observed in the offsprings of sexually reproducing organisms ?

Sexual and Asexual Reproduction

2018

Q. Write one main difference between asexual and sexual reproduction. Which species is likely to have comparatively better chances of survival - the one reproducing asexually and the one reproducing sexually ? Give reason to justify your answer.

2013

Q. List three distinguishing features between sexual and asexual reproduction.

Puberty

Q. What is puberty ?

Ans. It is the age at which the male and female become sexually matured.

Boys (13 to 14 years)

Girls (10 to 12 years)

Q. What are the changes seen in boys and girls during puberty ?

Ans. • **Boys :-** 1.) Growth of hair in the armpit and genital area.

2.) Skin becomes oily and pimples may occur.

3) Growth of beard and moustaches.

4.) Voice become deep and began to crack.

• **Girls :-** 1.) Growth of hair in the armpit and genital area.

2.) Development of mammary glands.

3.) Menstruation begans.

4) Deposit of fats in various parts of body.

Q. What is menstruation ?

Ans. In the absence of fertilisation, thick lining of uterus breaks which cause bleeding. This is called menstruation.

Q. Define menarche.

Ans. The onset of menstruation in female at about the age of (10 to 12) years is called menarche.

Q. Define menopause.

Ans. The stoppage of menstruation at about (45 to 50) years is called menopause.

★

Q. What happen if egg is not fertilised ?

Q. Why does menstruation occur ? or

Ans.

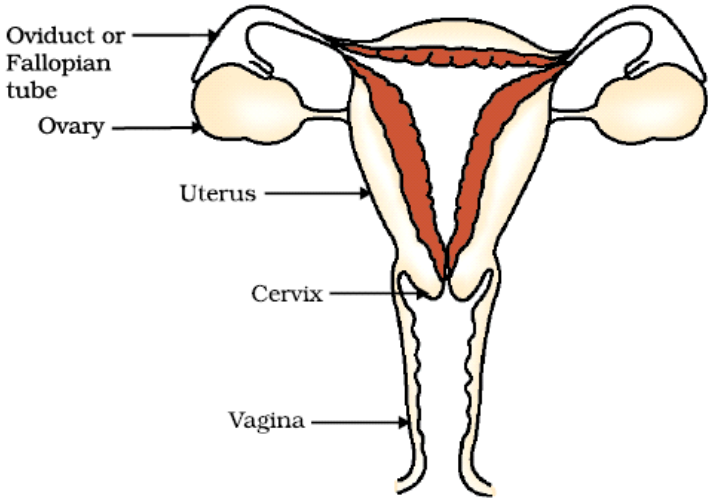
- Every month as one of the ovaries releases egg, the uterine wall thickens and prepare itself for recieving the developing zygote.

- If egg is not fertilised, zygote will not form. So, thick lining of uterus slowly breaks and menstruation occur.

Female Reproductive System

★ ★ ★ 2019

Q. Draw a sectional view of human female reproductive system and label the part where
(i) eggs produce
(ii) fertilisation takes place
(iii) fertilised egg gets implanted



Ans. (i) Ovary
(ii) Oviduct or Fallopian tube.
(iii) Uterus

Q. Name the parts of human female reproductive system where
(i) fertilisation takes place **(ii) implantation of the fertilised egg occurs**

Ans. (i) Oviduct or Fallopian tube.
(ii) Uterus.

Q. Where do the following take place in female reproductive organ of human ?
(a) production of egg
(b) fertilisation takes place
(c) the site of development of embryo.

(b) fertilisation takes place

(c) the site of development of embryo.

Ans. (i) Ovary

(ii) Oviduct or Fallopian tube.

(iii) Uterus.

★ ★ ★ **2017 2018**

Q. Write the function of the following parts in human female reproductive system :

(i) Ovary (ii) Oviduct / Fallopian tube (iii) Uterus

Ans. **Ovary :-** produce eggs or ova and also secrete sex hormones — oestrogen and progesterone.

Oviducts / Fallopian tubes :- are responsible for recieving eggs or ova from ovaries and carry it to the uterus. Fertilisation also takes place in oviduct.

Uterus :- is the place where implantation of fertilised egg occurs. Growth and development of embryo takes place in uterus.

Placenta

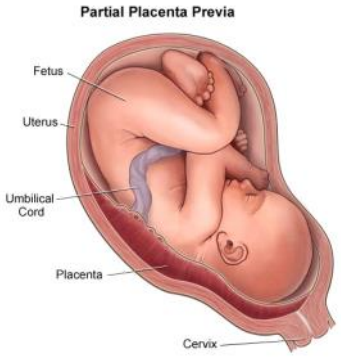
2017 2018

Q. Describe in brief the structure and function of placenta.

Ans. Structure of Placenta :- It is a disc like special tissue which is embedded in the uterine wall. It has villi on the embryo side and blood spaces surround the villi.

Function of Placenta :-

- It provides a large surface area for glucose and oxygen to pass from mother's body to the developing embryo.
- Waste products of embryo are removed into the mother's blood through placenta.



NCERT

Q. How does the embryo get nourishment inside the mother's body ?

Ans. Embryo get nourishment inside the mother's body through placenta. It provides a large surface area for glucose and oxygen to pass from mother's body to the developing embryo.

Q. The embryo gets its nutrition from the mother's blood with the help of a special tissue.

(a) What is the special tissue called ?
(b) Give any other function of this tissue apart from the one mentioned above.
(c) Explain the structure of this special tissue.

Ans. (a) Placenta

(b) • Waste products of embryo are removed into the mother's blood through placenta.

(c) **Structure of Placenta :-** It is a disc like special tissue which is embedded in the uterine wall. It has villi on the embryo side and blood spaces surround the villi.

Q. Define gestation period.

Ans. The time period from the development of foetus till the birth of child is called gestation period.

→ It lasts for about 9 months or 40 weeks or 280 days.

Male Reproductive System

Q. Name the human male reproductive organ that produces sperms and also secretes a hormone. Write the function of the secreted hormone.

NCERT

or

Q. What are the functions performed by the testis in human beings ?

Ans. **Testis :-** produce sperms and also secretes hormone called testosterone

Function of Testosterone :- It helps in development of male sex organs and secondary sexual characters at puberty.

Q. Mention the endocrine and exocrine function of testis.

Ans. **Endocrine function :-** production of male sex hormone called testosterone.

Exocrine function :- production of male gamete called sperms

Q. Where are testis located in human male ?

Ans. Testis are located outside the abdominal cavity in scrotum.

Q. Why are testis located outside the abdominal cavity ?

Ans. Because sperm formation requires a lower temperature than the normal body temperature.

NCERT ★ ★

Q. What is the role of the seminal vesicles and the prostate gland ?

Ans. **Seminal vesicles :-** secretes a fluid which provide nourishment to sperms and makes their transport easier.

Prostate gland :- Its secretion nourishes and activates the sperms to swim.

Q. Name the following parts :
(a) Region of presence of the testis.
(b) Tube that delivers the sperms.
(c) Hormone released by testes to bring about changes in the appearance in the boys.

Ans. (a) Scrotum

(b) Vas Deferens

(c) Testosterone

Q. Differentiate between male and female gamete.

Ans.	Sperm	Ovum
1.	produced in testis.	produced in ovaries.
2.	Lacs of sperms are produced	Only one ovum (egg) is produced in a menstrual cycle.
3.	Sperm is motile. It has tail.	Ovum is non-motile. It does not have tail.

Contraceptive Methods

2019

Q. What are contraceptive devices ?

Ans. They are the devices which prevent fertilisation and pregnancy in females.

NCERT

Q. What are the different methods of contraception ?

or

Q. Explain in brief any three contraceptive methods to avoid pregnancy.

Ans. (i) Barrier methods :- are physical devices such as condoms, diaphragms, etc. which acts as mechanical barrier so that sperm does not reach the egg.

- IUCD:- Intrauterine contraceptive device includes copper-T which is placed in the uterus by doctors.

→ But this cause irritation in the uterus and can cause other side-effects.

(ii) Chemical methods :- • Oral pills change the hormonal balance of the

body so that eggs are not released and fertilisation does not takes place.

→ But they change hormonal balance so they can cause side-effects.

(iii) Surgical methods :-

- **Vasectomy :-** In males, vas deferens is blocked which prevents the transfer of sperms and fertilisation will not takes place.

- **Tubectomy :-** In females, fallopian tube is blocked which prevents the transfer of egg and fertilisation will not takes place.

Q. Which one of these barrier contraceptive methods is not meant for males ?

Ans. Copper-T is not meant for males.

Q. How does the use of these techniques have a direct impact on the health and prosperity of a family ?

Ans. By use of these techniques a family will have lesser number of children so their economic condition will be better.

NCERT 2019

Q. What could be the reasons for adopting contraceptive methods ?

Ans. 1) To have the gap between two children.

2) To prevent unwanted pregnancy.

3) To prevent the increase in population.

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Q. If a woman is using copper -T, will it help in protecting from sexually transmitted diseases ?

Ans. No

Reproductive Health

Q. What are STD's (Sexually Transmitted diseases) ?

Ans. **STD's :-** Diseases that are sexually transmitted from an infected person to a healthy person are called STD's.

2013
Caused by Bacteria :- Gonorrhoea , Syphilis .

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Caused by Virus :- HIV – AIDS , Genital warts.

AIDS : **Acquired Immuno deficiency Syndrome**

Caused by HIV : **Human Immune deficiency Virus**

Q. List any two health related problems caused due to unsafe sex. Suggest two ways of preventing these problems.

Ans. (i) Unsafe sex may lead to unwanted pregnancy.

(ii) It may also cause STD's (Sexually Transmitted Diseases) like AIDS, Genital warts, etc.

Two ways to prevent these problems :-

2019

Q. List two bacterial diseases which are transmitted sexually.

Ans. Gonorrhoea & Syphilis

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Q. How sexually transmitted diseases can be prevented ?