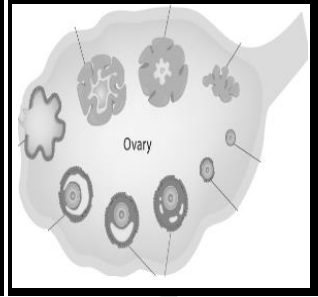


# UNIT - 17

## REPRODUCTION IN PLANTS AND ANIMALS



### I. Choose the correct answer

- The plant which propagates with the help of its leaves is \_\_\_\_\_.  
 a) onion                      b) neem                      c) ginger                      **d) bryophyllum**
- Asexual reproduction takes place through budding in \_\_\_\_\_.  
 a) amoeba                      **b) yeast**                      c) plasmodium                      d) bacteria
- Syngamy results in the formation of \_\_\_\_\_. [SEP – 2021]  
 a) zoospores                      b) conidia                      **c) zygote**                      d) chlamydozoospores
- The essential parts of a flower are \_\_\_\_\_.  
 a) calyx and corolla                      b) calyx and androecium  
 c) corolla and gynoecium                      **d) androecium and gynoecium**
- Anemophilous flowers have \_\_\_\_\_.  
 a) sessile stigma                      b) small smooth stigma  
 c) colored flower                      **d) large feathery stigma**
- Male gametes in angiosperms are formed by the division of \_\_\_\_\_. [MAY - 2022]  
**a) generative cell**                      b) vegetative cell                      c) microspore mother cell                      d) microspore
- What is true of gametes?  
 a) They are diploid                      b) They give rise to gonads  
 c) They produce hormones                      **d) They are formed from gonads**
- A single highly coiled tube where sperms are stored, get concentrated and mature is known as  
**a) Epididymis**                      b) Vasa efferentia  
 c) Vas deferens                      d) Seminiferous tubules
- The large elongated cells that provide nutrition to developing sperms are [SEP – 2021]  
 a) Primary germ cells                      **b) Sertoli cells**  
 c) Leydig cells                      d) Spermatogonia
- Estrogen is secreted by  
 a) Anterior pituitary                      b) Primary follicle  
**c) Graffian follicle**                      d) Corpus luteum
- Which one of the following is an IUCD?  
**a) Copper – T**                      b) Oral pills                      c) Diaphragm                      d) Tubectomy

II. Fill in the blanks

- The embryo sac in a typical dicot at the time of fertilization is seven cells and eighth nuclei.
- After fertilization the ovary develops into fruit.
- Planaria* reproduces asexually by regeneration.
- Fertilization is internal in humans.
- The implantation of the embryo occurs at about 6<sup>th</sup> and 7<sup>th</sup> day of fertilization.
- Colostrum is the first secretion from the mammary gland after childbirth.
- Prolactin is a hormone produced by anterior pituitary gland.

III. (a) Match the following

Column 1	Column 2	Answer
1. Fission	Spirogyra	1. Amoeba 2. Yeast 3. Spirogyra
2. Budding	Amoeba	
3. Fragmentation	Yeast	

III. (b) Match the following terms with their respective meanings

Column 1	Column 2	Answer
a) Parturition	Duration between pregnancy and birth.	a) Delivery of baby from uterus
b) Gestation	Attachment of zygote to endometrium.	b) Duration between pregnancy and birth
c) Ovulation	Delivery of baby from uterus.	c) Release of egg from Graafian follicle
d) Implantation	Release of egg from Graafian follicle.	d) Attachment of zygote to endometrium

IV. True or False. (If false give the correct statement)

- Stalk of the ovule is called pedicle. [False]  

*\*Stalk of the ovule is called **funiculus**.*
- Seeds are the product of asexual reproduction. [False]  

*\*Seeds are the product of **sexual** reproduction.*
- Yeast reproduces asexually by means of multiple fission. [False]  

*\*Yeast reproduces **vegetatively** by means of **budding**.*
- The part of the pistil which serves as a receptive structure for the pollen is called as style. [False]  

*\*The part of the pistil which serves as a receptive structure for the pollen is called as **stigma**.*
- Insect pollinated flowers are characterized by dry and smooth pollen. [False]  

*\***Wind** pollinated flowers are characterized by dry and smooth pollen.*
- Sex organs produce gametes which are diploid. [False]  

*\*Sex organs produce gametes which are **haploid**.*

7. LH is secreted by the posterior pituitary. [False]  
*\*LH is secreted by the **anterior** pituitary.*
8. Menstrual cycle ceases during pregnancy. [True]
9. Surgical methods of contraception prevent gamete formation. [False]  
*\*Surgical methods of contraception prevent **the release of gamete.***
10. The increased level of estrogen and progesterone is responsible for menstruation. [False]  
*\*The **decreased** level of estrogen and progesterone is responsible for menstruation.*

### V. Answer in a word or sentence

1. If one pollen grain produces two male gametes, how many pollen grains are needed to fertilize 10 ovules?	10 pollen grains
2. In which part of the flower germination of pollen grains takes place?	Stigma
3. Name two organisms which reproduces through budding.	Yeast, Hydra
4. Mention the function of endosperm.	It provides food to embryos.
5. Name the hormone responsible for the vigorous contractions of the uterine muscles.	Oxytocin
6. What is the enzyme present in acrosome of sperm?	Hyaluronidase
7. When is World Menstrual Hygiene Day observed?	May 28 <sup>th</sup>
8. What is the need for contraception?	It reduces population explosion.
9. Name the part of the human female reproductive system where the following occurs. a) Fertilization : Fallopian tube or ampulla      b) Implantation : Uterine wall	

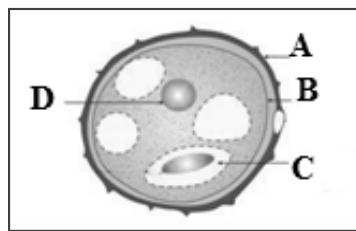
### VI. Short answer questions

1. What will happen if you cut planaria into small fragments?  
Each fragments of the cut planaria will give rise to new individual.
2. Why is vegetative propagation practiced for growing some type of plants? [PTA – 1]  
*Vegetative propagation is practiced, because*
- ❖ Some plants have lost their capacity to produce seeds.
  - ❖ Some higher plants retain their characters.
3. How does binary fission differ from multiple fission?

S.No.	Binary Fission	Multiple Fission
1.	Two new organisms are formed.	Many new organisms are formed.
2.	Occurs during favourable environmental conditions.	Occurs during unfavourable environmental conditions.
3.	<i>Ex</i> : Amoeba	<i>Ex</i> : Algae

4. Define triple fusion. [MAY - 2022, MDL – 19]
- ❖ One sperm fuses with egg and forms a diploid Zygote.
  - ❖ Other sperm fuses with secondary nucleus and forms triploid primary endosperm nucleus.

5. **Write the characteristics of insect pollinated flowers.** [PTA – 6]  
 ❖ Insect pollinated flowers are brightly coloured, have smell and nectar.  
 ❖ Its pollen grains are larger, exine is pitted, spiny, etc., and firmly adhere to stigma.
6. **Name the secondary sex organs in male.** [MAY - 2022]  
 Vas deferens, epididymis, seminal vesicle, prostate gland and penis.
7. **What is colostrum? How is milk production hormonally regulated?** [PTA – 2]  
 Colostrum is the milk produced during the first 2 to 3 days after child birth.  
 ❖ Milk production is stimulated by prolactin.  
 ❖ Ejection of milk is stimulated by oxytocin.
8. **How can menstrual hygiene be maintained during menstrual days?** [PTA – 4]  
 ❖ Sanitary pads should be changed regularly.  
 ❖ Use warm water to clean genitals.  
 ❖ Wearing loose clothing.
9. **How does developing embryo gets its nourishment inside the mother's body?** [PTA – 6]  
**Placenta** allows the exchange of food materials, diffusion of oxygen, excretion of nitrogenous wastes and elimination of carbon dioxide.
10. **Identify the parts A, B, C and D.** [AUG – 2022, MDL – 19]



**Pollen grain**  
**A** – Exine  
**B** – Intine  
**C** – Generative cell  
**D** – Vegetative nucleus

11. **Write the events involved in the sexual reproduction of a flowering plant.**  
 1) Pollination                                  2) Fertilization
- a) Discuss the first event and write the types. (or) What is pollination?** [SEP - 2021]  
 First event is pollination. It is the transfer of pollen grains from anther to stigma.  
 Types:     ❖ Self-pollination                          ❖ Cross pollination
- b) Mention the advantages and the disadvantages of that event.**

Self-pollination	Cross-pollination
<p><b>Advantages :</b></p> <ul style="list-style-type: none"> <li>❖ Do not depend on agents</li> <li>❖ No wastage of pollen grains.</li> </ul> <p><b>Disadvantages :</b></p> <ul style="list-style-type: none"> <li>❖ Seeds are less in numbers.</li> <li>❖ Seeds produce weak plants.</li> <li>❖ New varieties cannot be produced</li> </ul>	<p><b>Advantages :</b></p> <ul style="list-style-type: none"> <li>❖ It leads to production of new varieties.</li> <li>❖ More viable seeds are produced.</li> </ul> <p><b>Disadvantages :</b></p> <ul style="list-style-type: none"> <li>❖ Pollination may fail due to distance barrier.</li> <li>❖ More wastage of pollen grains.</li> <li>❖ It may introduce some unwanted characters</li> <li>❖ Depend on the external agencies.</li> </ul>

**12. Why are the human testes located outside the abdominal cavity? Name the pouch in which they are present.**

Human testes is outside the abdominal cavity, because sperm formation requires a lower temperature than our body temperature. Pouch in which they are present is scrotum.

**13. Luteal phase of the menstrual cycle is also called the secretory phase. Give reason.**

Progesterone and estrogen are secreted during luteal phase. It maintains pregnancy and prevents contraction of uterus. Thus, this phase is called secretory phase.

**14. Why are family planning methods not adopted by all the people of our country?**

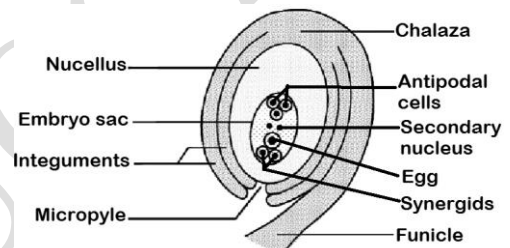
- ❖ Poverty
- ❖ Illiteracy
- ❖ Religious Opposition
- ❖ Lack of Cheap and Effective Methods

## VII. Long answer questions

**1. With a neat labelled diagram describe the parts of a typical angiospermic ovule. [PTA – 5]**

### Structure of the Ovule:

1. The main part is nucellus.
2. It is enclosed by two integuments
3. It has an opening called micropyle.
4. It is attached to ovary wall by funiculus.
5. Chalaza is the basal part.
6. Embryo sac contains seven cells and eighth nuclei within nucellus.



- Egg apparatus: 1 egg cell and 2 synergids (cells) at micropylar end.
- Antipodal cells: 3 cells at chalaza end.
- Polar nuclei in the centre.

**2. What are the phases of menstrual cycle? Indicate the changes in the ovary and uterus. [PTA – 3]**

#### ❖ Menstrual or Destructive Phase (4 – 5 days) :

- Development of primary follicles.
- Breakdown of endometrial lining leads to bleeding.
- Decrease in progesterone and oestrogen.

#### ❖ Follicular or Proliferative Phase (6<sup>th</sup> – 13<sup>th</sup> day) :

- Primary follicles grow to Graafian follicle.
- Endometrium regenerates through proliferation.
- FSH and oestrogen increase.

#### ❖ Ovulatory Phase (14<sup>th</sup> day) :

- Graafian follicle ruptures & releases ovum (egg).
- Increase in endometrial thickness.
- LH peak.

#### ❖ Luteal or Secretory Phase (15<sup>th</sup> – 28<sup>th</sup> day) :

- Emptied Graafian follicle develops into corpus luteum.
- If fertilization occurs, endometrium is prepared for implantation.
- If fertilization does not occur, uterine wall ruptures, bleeding starts and egg is expelled.
- LH & FSH decrease. Progesterone increases and then declines, if bleeding occurs.

**VIII. Higher Order Thinking Skills (HOTS)**

- 1. In angiosperms the pollen germinates to produce pollen tube that carries two gametes. What is the purpose of carrying two gametes when single gamete can fertilize the egg?**

In angiosperms, double fertilization takes place.

*The purpose of two gametes:*

- i) Endosperm thus formed provides food to developing embryo.
  - ii) It increases the viability of seeds.
  - iii) Plant has better chances of survival.
- 2. Why menstrual cycle does not take place before puberty and during pregnancy?**
- ❖ Before puberty, progesterone & estrogen secretion is absent. So, there is no menstrual cycle.
  - ❖ After fertilization, corpus luteum persists. So progesterone continues to secrete to protect the embedded embryo. So, there is no menstrual cycle during pregnancy.
- 3. Read the following passage and answer the questions that follow.**

**Rahini and her parents were watching a television programme. An advertisement flashed on the screen, which was promoting use of sanitary napkins. Rahini's parents suddenly changed the channel, but she objected to her parents and explained the need and importance of such advertisement.**

- a) What is first menstruation called? When does it occur?**

First menstruation is called Menarche. It occurs between 11 to 13 years of age.

- b) List out the napkin hygiene measures taken during menstruation.**

- ❖ Sanitary pad should be wrapped and discarded properly.
- ❖ Sanitary pad should not be flushed in toilet.
- ❖ Napkin incinerators should be used properly.

- c) Do you think that Rahini's objection towards her parents was correct? If so, Why?**

Yes, she was correct. Because, maintaining menstrual hygiene is important for woman's health. It is not a shame to discuss about such topics at home.