

PETIT SEMINAIRE HIGHER SECONDARY SCHOOL, PUDUCHERRY

17. REPRODUCTION IN PLANTS & ANIMALS

Xstd

SELF – EVALUATION

BIOLOGY

I. Choose the best answer :

1. The plant which propagates with the help of its leaves is *Bryophyllum*.
 a) Onion b) Neem c) Ginger d) *Bryophyllum*
2. Asexual reproduction takes place through budding in Yeast.
 a) *Amoeba* b) Yeast c) *Plasmodium* d) Bacteria
3. Syngamy results in the formation of Zygote.
 a) Zoospores b) Conidia c) Zygote d) Chlamydo spores
4. The essential parts of a flower are Androecium and Gynoecium.
 a) Calyx and Corolla c) Corolla and Gynoecium
 b) Calyx and Androecium d) Androecium and Gynoecium
5. Anemophilous flowers have large feathery stigma.
 a) sessile stigma b) small smooth stigma c) colored flower d) large feathery stigma
6. Male gametes in Angiosperms are formed by the division of Generative cell.
 a) Generative cell b) Vegetative cell c) Microspore mother cell d) Microspore
7. What is true of gametes? They are formed from gonads.
 a) they are diploid c) they produce hormones
 b) they give rise to gonads d) they are formed from gonads
8. A single highly coiled tube where sperms are stored, get concentrated and mature is known as Epididymis.
 a) Epididymis b) Vasa efferentia c) Vas deferens d) Seminiferous tubules
9. The large elongated cells that provide nutrition to developing sperms are Sertoli cells.
 a) Primary germ cells b) Sertoli cells c) Leydig cells d) Spermatogonia
10. Estrogen is secreted by Graffian follicle.
 a) Anterior pituitary b) Primary follicle c) Graffian follicle d) Corpus luteum
11. Which one of the following is an IUCD? Copper - T.
 a) Copper - T b) Oral pills c) Diaphragm d) Tubectomy

II. Fill in the blanks :

01. The embryo sac in a typical dicot at the time of fertilization is 7 celled.
02. After fertilization, the ovary develops into fruit.
03. Planaria reproduces asexually by regeneration.
04. Fertilization is internal in humans.
05. The implantation of the embryo occurs at about 7th day of fertilization.
06. Colostrum is the first secretion from the mammary gland after child birth.
07. Prolactin is a hormone produced by Anterior Pituitary gland.

III. (a) **Match the following :**

Column 1	Column 2
FISSION	<i>Amoeba</i>
BUDDING	YEAST
FRAGMENTATION	<i>Spirogyra</i>

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

- | | | | |
|----|--------------|-------|---------------------------------------|
| a) | Parturition | ----- | Delivery of baby from uterus |
| b) | Gestation | ----- | Duration between pregnancy and birth |
| c) | Ovulation | ----- | Release of egg from Graafian follicle |
| d) | Implantation | ----- | Attachment of zygote to endometrium |

IV. **State whether the following statements are True or False. Correct the false statement :**

1. Stalk of the ovule is called Pedicle. **FALSE**

Correct Statement : Stalk of the ovule is called **funicle**.

2. Seeds are the product of asexual reproduction. **FALSE**

Correct Statement : Seeds are the product of **sexual** reproduction.

3. Yeast reproduces asexually by means of multiple fission. **FALSE**

Correct Statement : Yeast reproduces asexually by means of **budding**.

4. The part of the pistil which serves as a receptive structure for the pollen is called as style. **FALSE**

Correct Statement : The part of the pistil which serves as a receptive structure for the pollen is called as **stigma**.

5. Insect pollinated flowers are characterized by dry and smooth pollen. **FALSE**

Correct Statement : **Wind** pollinated flowers are characterized by dry and smooth pollen.

(or)

Insect pollinated flowers are characterized by **large and spiny** pollens.

6. Sex organs produce gametes which are diploid. **FALSE**

Correct Statement : Sex organs produce gametes which are **haploid**.

7. LH is secreted by the posterior pituitary. **FALSE**

Correct Statement : LH is secreted by the **anterior** pituitary.

8. Menstrual cycle ceases during pregnancy. **TRUE**

9. Surgical methods of contraception prevent gamete formation. **FALSE**

Correct Statement : Surgical methods of contraception prevent **Fertilizaion / Pregnancy**.

10. The increased level of estrogen and progesterone is responsible for menstruation. **FALSE**

Correct Statement : The **decreased** level of estrogen and progesterone is responsible for menstruation.

V. Answer in a word or sentence :

01. If one pollen grain produces two male gametes, how many pollen grains are needed to fertilize 10 ovules?
10 pollen grains are needed to fertilize 10 ovules.
02. In which part of the flower germination of pollen grains takes place?
Germination of pollen grains takes place in the **Stigma** of flower.
03. Name two organisms which reproduce through budding.
Yeast and **Hydra** reproduce through budding.
04. Mention the function of endosperm.
Endosperm provides **food** to the developing **embryo**.
05. Name the hormone responsible for the vigorous contractions of the uterine muscles.
Oxytocin is the hormone which is responsible for the vigorous contractions of the uterine muscles.
06. What is the enzyme present in acrosome of sperm?
The enzyme that is present in the acrosome of sperm is **Hyaluronidase**
07. When is World Menstrual Hygiene Day observed?
The World Menstrual Hygiene Day is observed every **May 28**
08. What is the need for Contraception?
Contraception is one of the **best birth control measures**.
09. Name the part of the human female reproductive system where the following occurs.
- Fertilization
(a) Fertilization takes place in : **Fallopian tube**
 - Implantation
(b) Implantation takes place in : **Uterus**

VI. Short answer questions :

01. What will happen if you cut Planaria into small fragments?
- ❖ If Planaria is cut into small fragments, each piece can grow into a complete organism.
 - ❖ The ability of the lost body parts of an individual organism to give rise to a whole new organism is called regeneration. It takes place by specialized mass of cells of certain organisms like *Hydra* and *Planaria*.
02. Why is Vegetative propagation practiced for growing some type of plants?
- ❖ Some plants do not produce seeds. Hence vegetative propagation is practiced to propagate such plants.
 - ❖ Further vegetative propagation will help to retain the parental characters in the next generation as required for some high yielding varieties.
03. How does Binary fission differ from Multiple fission?

Sl. No.	BINARY FISSION	MULTIPLE FISSION
i)	Only two daughter cells produced.	Many daughter cells produced.
ii)	It takes place during favourable condition.	It takes place during unfavourable condition.

04. Define triple fusion.

In ANGIOSPERMS, during FERTILIZATION, one haploid (**n**) SPERM fuses with the haploid (**n**) EGG to form a diploid (**2n**) ZYGOTE.

Whereas the other SPERM (**n**) fuses with the SECONDARY (**2n**) NUCLEUS of the Ovule to form a TRIPLOID (**3n**) PRIMARY ENDOSPERM NUCLEUS. This formation of Endosperm is called TRIPLE FUSION.

05. Write the characteristics of insect pollinated flowers.

Characteristics of Insect Pollinated flowers :

- i) To attract insects, these flowers are brightly coloured, have smell and nectar.
- ii) The pollen grains are larger in size, the exine is pitted, spiny, etc., so they can be adhered firmly on the sticky stigma.

06. Name the secondary sex organs in male.

The secondary (accessory) sex organs in male include :

- i) VAS DEFERENS,
- ii) EPIDIDYMIS,
- iii) SEMINAL VESICLE,
- iv) PROSTATE GLAND AND
- v) PENIS.

07. What is colostrum? How is milk production hormonally regulated?

The first fluid which is released from the mammary gland after child birth is called as COLLOSTRUM.

Milk production from alveoli of mammary glands is stimulated by **Prolactin** secreted from the ANTERIOR PITUITARY.

Ejection of milk is stimulated by POSTERIOR PITUITARY hormone **Oxytocin**.

08. How can menstrual hygiene be maintained during menstrual days?

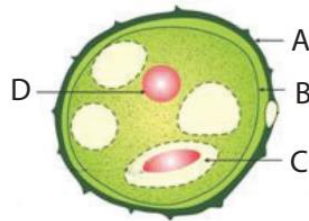
Maintaining Menstrual Hygiene :

- i) Sanitary pads should be changed regularly, to avoid infections due to microbes from Vagina and sweat from genitals.
- ii) Use of warm water to clean genitals helps to get rid of menstrual cramps.
- iii) Wearing loose clothing rather than tight fitting clothes will ensure the airflow around the genitals and prevent sweating.

09. How does developing embryo gets its nourishment inside the mother's body?

- ❖ **Placenta** is a disc shaped structure attached to the uterine wall and is a temporary association between the developing embryo and maternal tissues.
- ❖ It allows the exchange of food materials, diffusion of oxygen, excretion of nitrogenous Wastes and elimination of carbon-dioxide.
- ❖ A cord containing blood vessels that connects the placenta with the foetus is called the **Umbilical cord**.

10. Identify the parts A, B, C and D



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

11. Write the events involved in the sexual reproduction of a flowering plant.

- a) Discuss the first event and write the types.
- b) Mention the advantages and the disadvantages of that event.

The process of sexual reproduction in Flowering plants involves :

- i) **Pollination**
- ii) **Fertilization**

Pollination: The transfer of pollen grains from anther to stigma of a flower is called as pollination.

Types of pollination:

- a) **Self-pollination**
- b) **Cross pollination**

Self-pollination (Autogamy):

The transfer of pollen grain from the anther to the stigma of same flower or another flower borne on the same plant is known as self-pollination. E.g. *Hibiscus*.

Advantages of self-pollination:

- i) Self-pollination is **possible** in certain **bisexual flowers**.
- ii) Flowers **do not depend** on **agents** for pollination.
- iii) There are **no wastages** of **pollen grains**.

Disadvantages of self-pollination:

- i) The **seeds** are **less in number**.
- ii) The **endosperm** is **minute**. Therefore, the seeds produce **weak plants**.
- iii) New varieties of plants cannot be produced.

Cross-pollination (Allogamy):

It is the transfer of pollen from the anthers of a flower to the stigma of a flower on another plant of the same species. E.g., Apples, Grapes, Plum, etc.

Advantages of cross pollination:

- i) The seeds produced as a result of cross pollination, develop and germinate **properly** and grow into **better plants**, i.e., cross pollination leads to the production of **new varieties**.
- ii) **More viable seeds** are produced.

Disadvantages of cross-pollination:

- i) Pollination **may fail** due to **distance barrier**.
- ii) **More wastage** of pollen grains.
- iii) It may introduce some **unwanted characters**.
- iv) Flowers depend on the **external agencies** for pollination.

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

Human sperm cells that are produced in Testes can't withstand the normal internal body temperature and will start to die (if present inside the abdominal cavity). Hence, Human testes lie outside the abdominal cavity in a sac like structure called **scrotum**.

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

During the luteal phase, Progesterone is secreted by the corpus luteum, the endometrial glands secrete a clear fluid. The uterine wall becomes ready for nourishing and anchoring blastocyst; if fertilization taken place. Hence Luteal phase of menstrual cycle is also called the Secretory phase.

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

Family planning is a way of living that is adopted voluntarily by couples on the basis of knowledge and responsible decisions to promote the health and welfare of the family group and society.

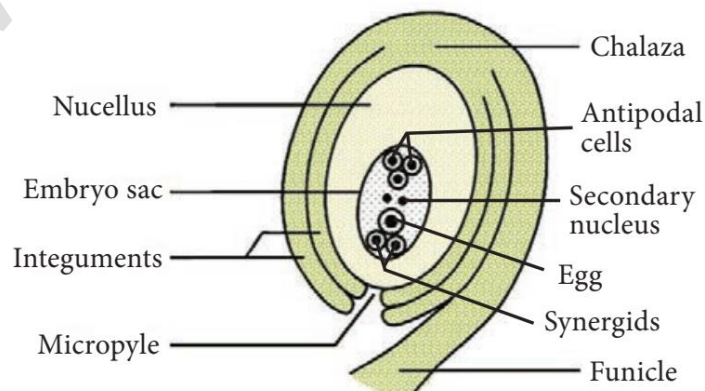
The WHO (World Health Organisation) has also stressed the importance of family planning as global health strategy for all.

Further many families especially in the lower strata of society believe that many children in a family can contribute to more income and do not adopt family planning.

VII. Long answer questions :

- Q1. With a neat labelled diagram describe the parts of a typical angiospermic ovule.

- i) The main part of the ovule is the nucellus which is enclosed by two integuments leaving an opening called as micropyle.
- ii) The ovule is attached to the ovary wall by a stalk known as Funiculus.
- iii) Chalaza is the basal part.
- iv) The embryo sac contains seven cells and eight nuclei located within the nucellus.
- v) Three cells at the micropylar end form the egg apparatus and the three cells at the chalaza end are the antipodal cells.
- vi) The remaining two nuclei are called polar nuclei found in the centre. In the egg apparatus one is the egg cell (female gamete) and the remaining two cells are the synergids.



Q2. What are the phases of menstrual cycle? Indicate the changes in the ovary and uterus.

PHASE	DAYS	CHANGES IN OVARY	CHANGES IN UTERUS	HORMONAL CHANGES
MENSTRUAL PHASE	4-5 days	Development of primary follicles	Breakdown of uterine endometrial lining leads to bleeding	Decrease in progesterone and oestrogen
FOLLICULAR PHASE	6 th -13 th day	Primary follicles grow to become a fully mature Graafian follicle	Endometrium regenerates through proliferation	FSH and oestrogen increase
OVULATORY PHASE	14 th day	The Graafian follicle ruptures, and releases the ovum (egg)	Increase in endometrial thickness	LH peak
LUTEAL PHASE	15 th -28 th day	Emptied Graafian follicle develops into corpus luteum	Endometrium is prepared for implantation if fertilization of egg takes place. If fertilization does not occur corpus luteum degenerates, uterine wall ruptures, bleeding starts and unfertilized egg is expelled	LH and FSH decrease, Corpus luteum produces progesterone and its level increases followed by a decline, if menstrual bleeding occurs.

VIII. Higher Order Thinking Skills (HOTS) :

Q1. 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, each pollen grain carries two sperms (male gametes). During fertilization, one sperm fuse with the egg (**SYNGAMY**) and forms a diploid **ZYGOTE**. Whereas the other sperm fuses with the secondary nucleus (**TRIPLE FUSION**) to form the **PRIMARY ENDOSPERM NUCLEUS** which is triploid in nature.

Primary endosperm nucleus develops into an **ENDOSPERM** later. Endosperm provides **food** to the developing embryo until the first set of foliage leaves are formed by the seedling.

This is the purpose of the pollen grains to carry two gametes in each.

Q2. Why menstrual cycle does not take place before puberty and during pregnancy?

The menstrual cycle begins only after the complete development of the gonads. During puberty, the gonads become functional and hence menstrual cycle begins.

Pregnancy is initiated by Fertilization and Zygote formation. The zygote gets implanted in the uterus. The ruptured follicle develops into a temporary endocrine gland called Corpus Luteum to produce hormones. Uterine wall is thickened to receive the zygote.

If Fertilization does not take place, Corpus Luteum degenerates, uterine wall ruptures and unfertilized egg is expelled resulting in menstruation. Hence menstrual cycle does not occur during Pregnancy.

Q3. 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?

The first menstruation is called **Menarch**. It occurs at the age of 11-13 years.

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

Napkin Hygiene measures:

i) The sanitary pad and tampons should be wrapped properly and discarded because they can spread infections.

ii) Sanitary pad or tampon should not be flushed down the toilet.

iii) Napkin incinerations are to be used properly for disposal of used napkins.

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

Yes, her objection was right. The advertisements create **awareness**. Thus, by watching such advertisements girls and their parents will gain **knowledge** about such products and their usage.