Chapter 17
Reproduction in Plants and Animals

I. Choose the correct Answer:

Question 1.
The plant which propagates with the help of its leaves is:
(a) Onion
(b) Neem
(c) Ginger
(d) Bryophyllum
Answer:
(d) Bryophyllum

Question 2.
Asexual reproduction takes place through budding in _____.
(a) Amoeba
(b) Yeast
(c) Plasmodium
(d) Bacteria.
Answer:
(b) Yeast

Question 3.
Syngamy results in the formation of:
(a) Zoospores
(b) Conidia
(c) Zygote
(d) Chlamydospores
Answer:
(c) Zygote

Question 4.
The essential parts of a flower are _____.
(a) Calyx and Corolla
(b) Calyx and Androecium
(c) Corolla and Gynoecium
(d) Androecium and Gynoecium.
Answer:
(d) Androecium and Gynoecium.

Question 5.
Anemophilous flowers have:

(a) Sessile stigma
(b) Small smooth stigma
(c) Colored flower
(d) Large feathery stigma
Answer:
(d) Large feathery stigma

Question 6.
Male gametes in angiosperms are formed by the division of _____.
(a) Generative cell
(b) Vegetative cell
(c) Microspore mother cell
(d) Microspore.
Answer:
(a) Generative cell

Question 7.
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
Answer:
(d) They are formed from gonads

Question 8.
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.
Answer:
(d) Seminiferous tubules.

Question 9.
The large elongated cells that provide nutrition to developing sperms are:
(a) Primary germ cells
(b) Sertoli cells
(c) Leydig cells
(d) Spermatogonia
Answer:
(b) Sertoli cells

Question 10.
Estrogen is secreted by _____.

(a) Anterior pituitary
(b) Primary follicle
(c) Graafian follicle
(d) Corpus luteum.
Answer:
(b) Primary follicle

Question 11.
Which one of the following is an IUCD?
(a) Copper – T
(b) Oral pills
(c) Diaphragm
(d) Tubectomy
Answer:
(a) Copper – T

II. Fill in the blanks:

1. The embryo sac in a typical dicot at the time of fertilization is .....
2. After fertilization the ovary develops into .....
3. Pianaria reproduces asexuallv by .....
4. Fertilization is ..... in humans.
5. The implantation of the embryo occurs at about ..... day of fertilization.
6. ..... is the first secretion from the mammary gland after child birth.
7. Prolactin is a hormone produced by .....

Answer:

1. Double fertilization
2. Fruits
3. Regeneration
4. Internal
5. 6 to 7
6. Colostrum
7. Anterior pituitary

III. Match the following:

Question 1.

	Column I		Column II
A	Fission	*(i)*	Spirogyra
B	Budding	*(ii)*	Amoeba
C	Fragmentation	*(iii)*	Yeast

Answer:
A. (ii)
B. (iii)
C. (i)

Question 2.
Match the following terms with their respective meanings

	Column I		Column II
A	A. Parturition	*(i)*	Duration between pregnancy and birth
B	B. Gestation	*(ii)*	Attachment of zygote to endometrium
C	C. Ovulation	*(iii)*	Delivery of baby from uterus
D	D. Implantation	*(iv)*	Release of egg from Graffian follicle

Answer:
A. (iii)
B. (i)
C. (iv)
D. (ii)

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

1. Stalk of the ovule is called pedicle.
2. Seeds are the product of asexual reproduction.
3. Yeast reproduces asexually by means of multiple fission.
4. The part of the pistil which serves as a receptive structure for the pollen is called as style.
5. Insect pollinated flowers are characterized by dry and smooth pollen.
6. Sex organs produce gametes which are diploid.
7. LH is secreted by the posterior pituitary.
8. Menstrual cycle ceases during pregnancy.
9. Surgical methods of contraception prevent gamete formation.
10. The increased level of oestrogen and progesterone is responsible for menstruation.

Answer:
1. False – Stalk of the ovule is called Funiculus
2. False – Seeds are the product of sexual reproduction
3. False – Budding reproduces asexually by means of multiple fission.
4. False – The part of the pistil which serves as a receptive structure or the pollen is called as stigma.
5. False – Wind pollinated flowers are characterized by dry and smooth pollen.

6. False – Sex organs produce gametes which are haploid
7. False – Anterior pituitary (LH is secreted by the Anterior pituitary)
8. True
9. True
10. True

V. Answer in a word or sentence.

Question 1.
If one pollen grain produces two male gametes, how many pollen grains are needed to fertilize 10 ovules?
Answer:
Atleast 10 pollen grains required to fertilise 10 ovules because only one male gamete is involved in the fusion of male gamete with the egg cell.

Question 2.
In which part of the flower germination of pollen grains takes place?
Answer:
Pollen grains reach the stigma and begin to germinate.

Question 3.
Name two organisms which reproduces through budding.
Answer:
Yeast and hydra reproduce through budding.

Question 4.
Mention the function of the endosperm.
Answer:
The endosperm provides food to the developing embryo.

Question 5.
Name the hormone responsible for the vigorous contractions of the uterine muscles.
Answer:
Oxytocin from the posterior pituitary stimulates the uterine contraction.

Question 6.
What is the enzyme present in the acrosome of sperm?
Answer:
Hyaluronidase is the enzyme, present in the acrosome of sperm, which helps the sperm to enter the ovum during fertilization.

Question 7.
When is World Menstrual Hygiene Day observed?
Answer:

Every year May 28th is observed as Menstrual Hygiene day to make girls and women aware of maintaining menstrual hygiene and importance of menstrual hygiene for good health.

Question 8.
What is the need for contraception?
Answer:
Contraception is used to prevent pregnancy, to check population growth.

Question 9.
Name the part of the human female reproductive system where the following occurs, (a) Fertilization (b) Implantation
Answer:
(a) Fertilization: Occurs in the oviduct of the female genital tract. It takes place usually in the ampulla of the fallopian tube.
(b) Implantation: Blastocyst reaches the uterus (uterine wall) (endometrium)

VI. Short Answer Questions

Question 1.
What will happen if you cut planaria into small fragments?
Answer:
Each fragment will develop into a new individual by a specialized mass of cell. It is called regeneration. It is the ability of the lost body parts of an individual organism to give rise to a whole new organism.

Question 2.
Why is vegetative propagation practised for growing some type of plants?
Answer:
The vegetative part of plant, root, stem, leaf or budgets detached from the parent body and grows into an independent daughter plant by mitotic division. The daughter plants are genetically similar to the parent plant.

Question 3.
How does binary fission differ from multiple fission?
Answer:

Binary fission	Multiple fission
Binary fission is the splitting of a cell into two daughter cell.	Multiple fission is splitting of a parent cell into two or more daughter cells.
Takes place in favourable conditions.	Takes place in unfavourable conditions.
Cyst formation is absent.	Cyst formation occurs.
Eg: Amoeba, Paramecium	**Eg:** Plasmodium

Question 4.
Define triple fusion.
Answer:
The fusion involving two polar nuclei and a sperm nucleus, that occurs in double fertilization in a seed plant and results in the formation of endosperm, is called the triple fusion.

Question 5.
Write the characteristics of insect-pollinated flowers.
Answer:

1. The flowers are brightly coloured to attract insects which have smell and nectar.
2. The pollen grains are larger in size, the exine is pitted, spiny, so they can be adhered firmly on the stucky stigma.

Question 6.
Name the secondary sex organs in male.
Answer:
The secondary sex organs in the male are vas deferens, Epididymis, seminal vesicle, prostate gland and penis.

Question 7.
What is colostrum? How is milk production hormonally regulated?
Answer:
The milk produced from the breast during the first 2 to 3 days after child birth is called colostrum. Milk production from alveoli of mammary glands is stimulated by prolactin secreted from the anterior pituitary.

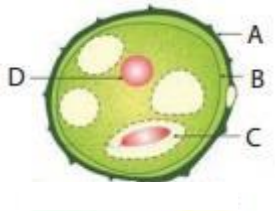
Question 8.
How can menstrual hygiene be maintained during menstrual days?
Answer:
Maintaining menstrual hygiene is important for the overall health of women.

- Sanitary pads should be changed regularly, to avoid infections due to microbes from vagina and sweat from genitals.
- Use of warm water to clean genitals, to get rid of menstrual cramps.
- Wearing loose clothing, to ensure the airflow around the genitals, to prevent sweating.

Question 9.
How does developing embryo gets its nourishment inside the mother's body?
Answer:
The developing embryo gets nutrition from the mother's blood with the help of a special tissue called placenta. It is embedded in the uterine wall. This is a disc like tissue which develops between the uterine walls and embryo. It has villi of embryo side of the tissue. On

the mother side are blood spaces with the villi. This gives a large surface area for oxygen and glucose to pass from the mother to the embryo.

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



Answer:
A – Exine
B – Intine
C – Generative nucleus
D – Vegetative nucleus

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

1. Discuss the first event and write the types.
2. Mention the advantages and disadvantages of that event.

Answer:

1. The transfer of pollen grains from the anther to the stigma of a flower is called pollination. Self – Pollination and Cross-Pollination are the two types of Pollination.
2. Advantages:
    - It results in fertilization, which leads to the formation of fruits and seeds.
    - New varieties of plants are formed, through a new combination of genes,
3. Disadvantages:
    - More wastage of pollen grains.
    - Pollination may fail due to the distance barrier.
    - Flowers depend on external agencies for pollination.

Question 12.
Why are the human testes located outside the abdominal cavity? Name the pouch in which they are present.
Answer:
Human testes responsible for synthesis of male gametes(sperms) need slightly lower temperature than the normal body temperature for this function. Thus, they are located outside the abdominal cavity in a sac like structure called scrotum.

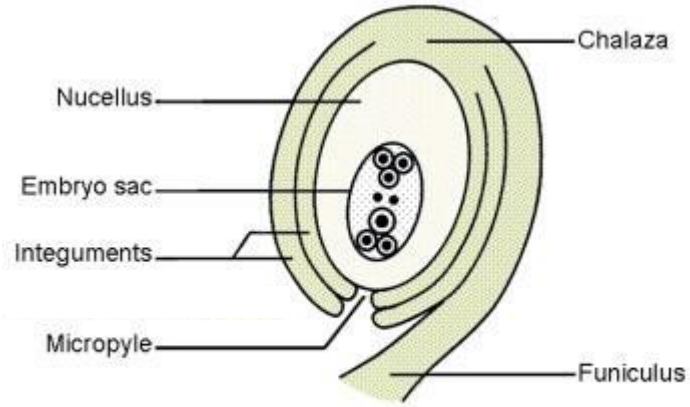
Question 13.
The luteal phase of the menstrual cycle is also called the secretory phase. Give reason.
Answer:

During the Luteal phase of the menstrual cycle in the uterus, the hormone progesterone is produced by the ovaries. Progesterone and estrogen are secreted by the Corpus Luteum, which develops from the Graafian follicle. So this phase of the menstrual cycle is called the secretory phase.

Question 14.
Why are family planning methods not adopted by all the people of our country?
Answer:
Family planning is a way of living that is adopted voluntary by couples on the basis of knowledge and responsible decision to promote the health and welfare of the family group and society. As it is voluntary many people are not aware of the importance of family planning.

VII. Long Answer Questions.

Question 1.
With a neat labelled diagram describe the parts of a typical angiospermic ovule.
Answer:
Structure of the Ovule : The main part of the ovule is the nucellus which is enclosed by two integuments leaving an opening called as micropyle. The ovule is attached to the ovary wall by a stalk known as funiculus. Chalaza is the basal part.



Structure of the Ovule

The embryo sac contains seven cells and the eighth nuclei located within thenucellus. Three cells at the micropylar end form the egg apparatus and the three cells at the chalaza end are the antipodal cells. 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.

Question 2.
What are the phases of menstrual cycle? Indicate the changes in the ovary and uterus.

Answer:

Phase	Days	Changes in Ovary	Changes in Uterus
Menstrual phase	4–5 days	Development of primary follicles	Breakdown of uterine endometrial lining leads to bleeding
Follicular phase	6th–13th day	Primary follicles grow to become a fully mature Graafian follicle	Endometrium regenerates through proliferation
Ovulatory phase	14th day	The Graafian follicle ruptures, and releases the ovum(egg)	Increase in endometrial thickness
Luteal phase	15th–28th 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

VIII. Higher Order Thinking Skills: (HOTS)

Question 1.
In angiosperms, the pollen germinates to produce a pollen tube that carries two gametes. What is the purpose of carrying two gametes when single gamete can fertilize the egg?
Answer:
One sperm fuses with the egg (syngamy) and forms a diploid zygote. The other sperm fuses with the secondary nucleus (Triple fusion) to form the primary endosperm. After triple fusion, the primary endosperm nucleus develops into an endosperm. The purpose of carrying two gametes is, endosperm provides food to the developing embryo.

Question 2.
Why menstrual cycle does not take place before puberty and during pregnancy?
Answer:
Menstruation occur when the egg is not fertilized. Every month uterus prepares itself to receive the fertilized egg to nourish the embryo, its lining becomes thick and spongy for

implantation of the fertilized egg.
In case egg is not fertilized thin lining breaks and discharged out of the body through the vagina in the form of blood.
This condition will not happen before puberty and during pregnancy.

Question 3.
Read the following passage and answer the questions that follow:
Rohini and her parents were watching a television programme. An advertisement flashed on the screen which was promoting the use of sanitary napkins. Rohini'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?
(b) List out the napkin hygiene measures taken during menstruation?
(c) Do you think that Rohini's objection towards her parents was correct? If so, Why?
Answer:
(a) The first period or menstruation is a point in time, known as Menarche. It usually begins between 12 to 15 years of age.

(b)

1. The sanitary pad and tampons should be wrapped properly and discarded because they can spread infections.
2. Sanitary pad or tampon should not be flushed down the toilet.
3. Napkin incinerators are to be used properly for disposal of used Napkins.

(c) No, it was not correct. The parents and teachers have to create awareness among the school girls about the use of Napkins and their proper disposal. Girls should be educated and should know the importance of such advertisement on Television.