6.REPRODUCTION IN ANIMALS

TEACHING TASK (Page 4 – 6)

NEET LEVEL QUESTIONS

Multi Correct Answer Type

1) The production of new organism which is not exact of parent is due to

Answer: D) Sexual Reproduction

Explanation: Sexual reproduction involves the fusion of male and female gametes, leading to genetic variation in offspring, so they are not exact copies of the parent. Asexual reproduction (A), vegetative propagation (B), and cloning (C) produce genetically identical offspring.

2) Variations are possible in

Answer: B) Sexual Reproduction

Explanation: Sexual reproduction introduces variations due to genetic recombination and independent assortment during gamete formation. Multiple fission (A), budding (C), and schizogony (D) are asexual processes with little to no genetic variation.

3) The position of testes during early foetal life

Answer: C) Within abdominal cavity near the kidneys

Explanation: During early foetal life, testes are located in the abdominal cavity near the kidneys. They descend into the scrotal sacs (A) later in development, typically before birth. They are not in the thoracic cavity (B) or inguinal canals (D) during early foetal life.

4) Sperms are produced in

Answer: A) Seminiferous tubules

Explanation: Sperms are produced in the seminiferous tubules of the testes through spermatogenesis. Interstitial cells (B) produce testosterone, vas deferens (C) transports sperm, and prostate glands (D) secrete seminal fluid.

5) The sperms are stored temporarily in

Answer: D) Epididymis

Explanation: After production in the seminiferous tubules (A), sperms are stored and matured in the epididymis. The scrotum (B) houses the testes, and vas efferentia (C) transport sperm from testes to epididymis.

6) Permanent cessation of ovulation is called

Answer: B) Menopause

Explanation: Menopause is the permanent cessation of ovulation and menstruation due to the depletion of ovarian follicles, typically occurring around age 45–55. Amenorrhea (A) is temporary cessation, menarche (C) is the onset of menstruation, and dysmenorrhea (D) refers to painful periods.

7) In mammals, the fertilization occurs in

Answer: D) Fallopian tubes

Explanation: Fertilization in mammals occurs in the fallopian tubes (oviducts), where the sperm meets the egg. The uterus (A) is for implantation, the cervix (B) connects the uterus to the vagina, and the infundibulum (C) is part of the fallopian tube but not the precise site.

8) Colostrum is the

Answer: A) First milk

Explanation: Colostrum is the first milk produced by mammary glands after childbirth, rich in antibodies and nutrients. It is not semen (B), saliva (C), or blood (D).

9) Menstruation is caused by

Answer: C) Fall in progesterone level

Explanation: Menstruation occurs due to a drop in progesterone levels, which causes the endometrial lining to shed. FSH (A) stimulates follicle development, oxytocin (B) is involved in labor, and oestrogen (D) supports endometrial growth.

10) The ovulation occurs

Answer: C) About 14th day after mensus

Explanation: Ovulation typically occurs around the 14th day of a 28-day menstrual cycle, triggered by a surge in luteinizing hormone (LH). The other options (A, B, D) do not align with the typical ovulation timing.

Advanced Level Questions

11) Find the correct statement

Answer: C) i & iv

Explanation:

i. Male sex cells are called sperms: Correct, sperms are male gametes.

ii. A sperm flagella will not help in locomotion: Incorrect, the flagellum is essential for sperm motility.

iii. Ovary lie in the abdomen: Correct, but not specific enough to be always true without context (ovaries are in the pelvic cavity).

iv. Sperm is called as spermatozoan: Correct, spermatozoan is the scientific term for sperm. Thus, only **i** and **iv** are universally correct.

12) Find the incorrect statement

Answer: D) i & ii

Explanation:

i. Fertilisation occurs in ovaries: Incorrect, fertilization occurs in the fallopian tubes.

ii. Female reproductive organ is testosterone: Incorrect, testosterone is a male hormone; female reproductive organs include ovaries, uterus, etc.

iii. Fusion of male and female gametes is called sexual reproduction: Correct, this defines sexual reproduction.

iv. Release of egg or ovum is called ovulation: Correct. Thus, **i** and **ii** are incorrect.

Assertion and Reason Type

13) Assertion: Sperms are formed from four primary spermatocytes.

Reason: Acrosome is formed by the Golgi apparatus and contains lytic enzyme hyaluronidase

Answer: B) Both Assertion and Reason are True, but Reason is NOT the correct explanation for Assertion.

Explanation:

Assertion: One primary spermatocyte undergoes meiosis to produce four sperms, so the statement is true if interpreted as each primary spermatocyte yielding four sperms.

Reason: The acrosome, formed by the Golgi apparatus, contains hyaluronidase, which is true. However, the reason does not explain the assertion, as acrosome formation is unrelated to the number of sperms produced.

14) Assertion: In humans, the eggs are microlecithal.

Reason: The nourishment needed for the embryonic development is provided by the mother through placenta

Answer: A) Both Assertion and Reason are True, and Reason is the correct explanation for Assertion.

Explanation:

Assertion: Human eggs are microlecithal (having little yolk) because they rely on maternal nourishment.

Reason: The placenta provides nutrients to the embryo, explaining why human eggs do not need large yolk reserves. The reason directly supports the assertion.

Match the Following

15) Match the following:

Menstrual cycle

Gestation period

Life span of sperm

Fertilisation

Answer: B) 1-c, 2-a, 3-d, 4-b

Explanation:

Menstrual cycle: ~28–30 days (c).

Gestation period: ~280 days in humans (a).

Life span of sperm: ~24 hours in the female reproductive tract (d).

Fertilisation: Occurs in the fallopian tubes (b).

16) Match the following:

Human egg

Uterus

Fish

Cat, Dog

Answer: A) 1-c, 2-d, 3-b, 4-a

Explanation:

Human egg: ~0.15 mm in diameter (c).

Uterus: Associated with female reproduction (d).

Fish: Typically undergo external fertilisation (b).

Cat, Dog: Undergo internal fertilisation (a).

Comprehensive

17) The reproductive cycle in the primates is called menstrual cycle…

i. During menstrual cycle changes occur in

Answer: D) Endometrium

Explanation: The menstrual cycle involves cyclical changes in the endometrium (uterine lining), preparing it for potential pregnancy.

ii. Menstruation begins during

Answer: C) Puberty

Explanation: Menstruation begins at puberty, marked by menarche.

iii. The word 'Mensem'

Answer: B) Month

Explanation: The term "menstruation" derives from "mensem," meaning month, reflecting the ~28-day cycle.

iv. The release of ovum is called

Answer: A) Ovulation

Explanation: Ovulation is the release of an ovum from the ovary.

v. Arrange the following in an order

Answer: A) Menstrual phase, Follicular phase, Ovulatory phase, Luteal phase

Explanation: The menstrual cycle progresses as: Menstrual phase (endometrial shedding), Follicular phase (follicle development), Ovulatory phase (ovum release), Luteal phase (corpus luteum formation).

LEARNERS TASK (Page 6 – 10)

Conceptual Understanding Questions

1) Internal fertilisation occurs in

Answer: A) In female body

Explanation: Internal fertilisation occurs inside the female body, typically in the fallopian tubes in mammals.

2) The number of nuclei present in a *zygote* is

Answer: C) Two

Explanation: A zygote is formed by the fusion of a sperm and egg, each contributing one nucleus, resulting in two nuclei initially before they fuse.

3) Fertilisation results immediately in the formation of

Answer: A) A zygote

Explanation: Fertilisation is the fusion of gametes, forming a zygote, which later develops into an embryo, foetus, and placenta.

4) Which of the following is not a part of the human male reproductive system?

Answer: B) Oviducts

Explanation: Oviducts (fallopian tubes) are part of the female reproductive system. Testis, seminal vesicles, and epididymis are male reproductive structures.

5) Reproduction is essential for living organisms in order to

Answer: D) Continue the species forever

Explanation: Reproduction ensures the continuation of a species by producing new individuals.

6) One of the following occur in the reproductive system of flowering plants as well as that of humans. This is:

Answer: C) Ovary

Explanation: The ovary in plants produces ovules (similar to eggs), and in humans, it produces ova. Other options (sperm ducts, anther, style) are specific to either humans or plants.

7) In human males, the testes lie in the scrotal sac outside the body because it helps in the:

Answer: D) Maintain low temperature of testis

Explanation: The scrotum maintains a lower temperature (~2–3°C below body temperature), essential for sperm production.

8) In humans, one matured egg is released into oviduct every __ by one of the ovaries.

Answer: C) Every month

Explanation: One egg is released approximately every 28 days during ovulation in the menstrual cycle.

9) The cells involved in sexual reproduction are called

Answer: B) Gametes

Explanation: Gametes (sperm and egg) are the cells involved in sexual reproduction. Gametogenesis (A) is the process of gamete formation.

10) The process of __ ensures continuity of life on earth

Answer: A) Reproduction

Explanation: Reproduction produces new individuals, ensuring species continuity.

11) Fusion of gametes gives rise to a single cell called

Answer: C) Zygote

Explanation: The fusion of sperm and egg forms a zygote, a single diploid cell.

12) The process of fusion of gametes is

Answer: B) Fertilisation

Explanation: Fertilisation is the fusion of male and female gametes, distinct from internal (A) or external (C) fertilisation, which describe locations.

13) The other name of egg is

Answer: D) Ovum

Explanation: The egg in females is scientifically called an ovum.

14) A sperm is much ____ than the egg cell.

Answer: A) Smaller

Explanation: Sperm cells are much smaller (~0.05 mm) than egg cells (~0.15 mm).

15) The diameter of a human egg cell?

Answer: B) 0.15 mm

Explanation: The human egg (ovum) has a diameter of approximately 0.15 mm.

16) One of the following is not a part of human female reproductive system. This one is

Answer: C) Scrotal sac

Explanation: The scrotal sac is part of the male reproductive system. Ovary, uterus, and oviducts are female reproductive structures.

17) The egg cells and sperm cells can be seen by the help of

Answer: D) Electron microscope

Explanation: Sperm and egg cells are microscopic and best visualized using an electron microscope for detailed structure, though a compound microscope (A) can also be used for basic observation.

18) A size of the human males sperm cell is?

Answer: C) 0.05 mm

Explanation: The human sperm cell is approximately 0.05 mm in length.

19) Examples of internal fertilisation

Answer: D) All of these

Explanation: Cows, dogs, horses, cats, tigers, lions, rabbits, and deer all undergo internal fertilisation.

20) The animals undergo external fertilisation

Answer: D) Fish-frog

Explanation: Fish and frogs typically undergo external fertilisation, releasing gametes into the environment. Pigeons, cows, sparrows, hens, snakes, and crocodiles use internal fertilisation.

21) The usual components present in sperm and egg cells

Answer: D) All of these

Explanation: Both sperm and egg cells contain a nucleus, cytoplasm, mitochondria for ATP production, and a cell membrane.

22) The accumulation of a watery lymph-like fluid during the last part of the pregnancy is

Answer: C) Amnion fluid

Explanation: Amniotic fluid surrounds the foetus, providing protection and support. Colostrum (B) is produced post-birth, and cholesterol (A) is unrelated.

23) What is the importance of colostrum for the newborn babies

Answer: C) Developing immune system of a child

Explanation: Colostrum is rich in antibodies, aiding the development of the newborn's immune system.

24) The important feed for the newborn baby is

Answer: B) Colostrum

Explanation: Colostrum is the first milk, crucial for providing immunity and nutrients to newborns.

25) Pregnancy lasts on an average, nine months or 280 days. This period is called period

Answer: B) Gestation period

Explanation: The gestation period is the duration of pregnancy, approximately 280 days in humans.

Short Answer Questions

1) When a human female reaches a certain age then vaginal bleeding occurs for a few days after regular time intervals

A) What is the process known as

(i) in scientific terms

(ii) in everyday language?

(i) Scientific term: Menstruation

(ii) Everyday language: Period

Explanation: Menstruation is the scientific term for the monthly shedding of the uterine lining, commonly called a period.

B) After how much time is the process repeated, for how many days this process usually lasts?

Repeated: Every 28–30 days

Duration: 3–7 days

Explanation: The menstrual cycle repeats approximately every 28–30 days, with bleeding lasting 3–7 days.

C) What does the onset of this process in human female signifies?

Signifies: Puberty and reproductive maturity

Explanation: The onset of menstruation (menarche) indicates the start of puberty and the ability to reproduce.

D) At which particular event in the life of a human female this process stops temporarily, but starts again?

Event: Pregnancy

Explanation: Menstruation stops during pregnancy due to hormonal changes but resumes after childbirth.

E) At which approximate age of human female this process stops permanently?

Age: 45–55 years

Explanation: Menstruation stops permanently during menopause, typically between 45–55 years, marking the end of reproductive capability.

2) When a fertilized egg E formed in the oviduct of a human female divides repeatedly to form an embryo…

A) What is the other name of fertilized egg cell E?

Answer: Zygote

Explanation: The fertilized egg is called a zygote, formed by the fusion of sperm and egg.

B) What is the name of tissue T?

Answer: Placenta

Explanation: The placenta is the disk-like tissue that facilitates nutrient and waste exchange between the mother and embryo.

C) Name the string-like structure S.

Answer: Umbilical cord

Explanation: The umbilical cord connects the embryo to the placenta, allowing nutrient and oxygen transport.

D) Name two substances which pass from mother's blood to embryo through tissue T and one type of substance which passes from embryo to mother's blood.

From mother to embryo: Oxygen, nutrients (e.g., glucose)

From embryo to mother: Carbon dioxide (waste product)

Explanation: The placenta transfers oxygen and nutrients from the mother to the embryo and removes waste like carbon dioxide from the embryo.

E) What happens to S when the baby is born, Why?

Answer: The umbilical cord (S) is cut after birth because it is no longer needed as the baby begins to breathe and feed independently.

Explanation: After birth, the baby's lungs and digestive system take over, rendering the umbilical cord obsolete, so it is clamped and cut.

JEE ADVANCED LEVEL QUESTIONS

Multi Correct Answer Type

1) Identify the incorrect statement

Answer: C) ii & iv

Explanation:

i. A watery lymph-like fluid called colostrum is released after the birth of the baby: Correct, colostrum is the first milk produced post-birth.

ii. The fertilization occurs within female body is known as External fertilization: Incorrect, fertilization within the female body is internal fertilisation.

iii. The umbilical cord is cut by the doctor after the child birth: Correct, this is standard practice.

iv. Colostrum decreases immune power of child: Incorrect, colostrum boosts the child's immune system. Thus, **ii** and **iv** are incorrect.

2) Identify the part which do not belong to female reproductive system

Answer: D) (iii) & (iv)

Explanation:

(i) Fallopian tube: Part of the female reproductive system.

(ii) Endometrium: Part of the female reproductive system (uterine lining).

(iii) Epididymis: Part of the male reproductive system (stores sperm).

(iv) Prostate glands: Part of the male reproductive system (secretes seminal fluid). Thus, **(iii)** and **(iv)** are not part of the female reproductive system.

3) Which of the following makes the birth difficult

Answer: D) only (ii)

Explanation:

(i) The head of the foetus is turned down: Incorrect, this is the normal position (cephalic presentation) for birth.

(ii) The feet of the foetus is down: Correct, breech presentation (feet down) can complicate vaginal delivery.

(iii) The rhythmic contraction of muscles of uterus: Incorrect, these contractions facilitate birth.

(iv) Secretion of fluid by breaking Amniotic fluid: Incorrect, the breaking of amniotic fluid is a normal part of labor. Thus, only **(ii)** makes birth difficult.

Assertion and Reason Type

4) Assertion: A watery lymph-like fluid is called colostrum.

Reason: The mammary glands secrete only colostrum

Answer: C) Assertion is True, but Reason is False.

Explanation:

Assertion: Colostrum is a watery, lymph-like fluid produced by mammary glands post-birth, so this is true.

Reason: Mammary glands secrete both colostrum and mature milk, so the statement that they secrete only colostrum is false.

5) Assertion: The cells involving sexual reproduction is called gametes.

Reason: These gametes are not having the involvement in formation of zygote.

Answer: C) Assertion is True, but Reason is False.

Explanation:

Assertion: Gametes (sperm and egg) are the cells involved in sexual reproduction, so this is true.

Reason: Gametes fuse to form a zygote, so the statement that they are not involved in zygote formation is false.

6) Assertion: Reproduction is essential for the survival of a species on the earth.

Reason: It ensures continuity of life on earth.

Answer: A) Both Assertion and Reason are True, and Reason is the correct explanation for Assertion.

Explanation:

Assertion: Reproduction is essential for species survival, which is true.

Reason: Reproduction ensures the continuation of life by producing new individuals, directly explaining the assertion.

Match the Following

7) Match the following:

Internal fertilisation

External fertilisation

Vasectomy

Tubectomy

Answer: C) 1-d, 2-c, 3-a, 4-b

Explanation:

Internal fertilisation: Occurs in snakes, crocodiles (d).

External fertilisation: Occurs in frogs, fishes (c).

Vasectomy: Sterilization in human males (a).

Tubectomy: Sterilization in human females (b).

8) Match the following:

Sperm

Ovum

Zygote

Colostrum

Testosterone

Answer: B) 1-d, 2-a, 3-b, 4-c, 5-e

Explanation:

Sperm: Male gamete (d).

Ovum: Female gamete (a).

Zygote: Fertilized egg (b).

Colostrum: Secretion of mammary gland (c).

Testosterone: Male hormone (e).

Comprehensive

9) In the testis the immature male germ cells, spermatogonia produce sperms by spermatogenesis...

i. Human male gametes are

Answer: A) Sperms

Explanation: Male gametes in humans are called sperms.

ii. The nature of spermatozoa is

Answer: B) Haploid

Explanation: Spermatozoa are haploid, containing half the number of chromosomes (23 in humans).

iii. The number of chromosomes in spermatogonial stem cells

Answer: C) 46 chromosomes

Explanation: Spermatogonial stem cells are diploid, containing 46 chromosomes in humans.

iv. The type of cell division included in the formation of sperms are

Answer: D) Meiosis

Explanation: Sperm formation involves meiosis, reducing the chromosome number from diploid (46) to haploid (23).

Single Correct Answer MCQs

1) Sertoli cells are found in testis. These cells are

Answer: A) Nurse cell

Explanation: Sertoli cells, found in the seminiferous tubules, support and nourish developing sperm cells.

2) The functional maturation of sperms takes place in

Answer: B) Epididymis

Explanation: Sperms undergo functional maturation (gaining motility) in the epididymis.

3) The Sertoli cells occur in

Answer: A) Human testis

Explanation: Sertoli cells are specific to the testes in mammals, including humans, and are not found in ovaries or frog testes.

4) Which one of the following is primary sex organ?

Answer: C) Testis

Explanation: The testis is a primary sex organ as it produces gametes (sperms) and hormones. Scrotum, penis, and prostate are accessory structures.

5) If somatic chromosome number is 40, what shall be the chromosomal number in the cell of seminiferous tubules?

Answer: D) 40 and 20

Explanation: Cells in the seminiferous tubules include diploid cells (e.g., spermatogonia with 40 chromosomes) and haploid cells (e.g., spermatids with 20 chromosomes after meiosis).

6) Expanded proximal part of oviduct in females is

Answer: C) Fimbriated funnel

Explanation: The fimbriated funnel (infundibulum) is the expanded proximal part of the oviduct, capturing the released ovum.

7) Testis descent into scrotum in mammals for

Answer: A) Spermatogenesis

Explanation: The descent of testes into the scrotum maintains a lower temperature necessary for effective spermatogenesis.