CHAPTER- 8

REPRODUCTION IN ORGANISMS

MULTIPLE CHOICE QUESTIONS:

Q.1. The two oviducts in a human female unite into an elastic bag like is known as

a. Vagina b. Uterus c. Fallopian tube d. Cervix

Q.2. Which of the following disease is transmitted sexually?

a. Kala azar b. Jaundice c. Cholera d. Syphilis

Q.3. Which of the following is a contraceptive?

a. Copper t b. Condom c. Diaphragm d. All of these

Q. 4. When a animal is cut into pieces and each piece grows into a complex organism. What is the process?

a. Budding b. Fragmentation c. Spore formation d. Regeneration

Q. 5. Which is the portion on which grafting is done it provides the roots?

a. Stock b. Scion c. Both a and b d. None of these

Q.6. Where does fertilization occur in human females?

a. Uterus b. Cervix c. Oviduct d. None of these

Q.7. Growing fetus derive nutrition from mother's blood through

a. Uterus b. Fallopian tube c. placenta d. cervix

Q. 8. What is the puberty age in human males?

a. 8-10 b. 10-12 c. 12-14 d. 14-16

Q.9. Fruits are formed from

a. Stamen b. Stigma c. Ovary d. Ovule

Q. 10. IUCD is for

a. Vegetative propagation b. Contraception

c. Increasing fertility d. Avoiding miscarriage

Q. 11. Which among the following is a unicellular organism that reproduces by budding?

(a) Hydra (b) Planaria (c) Yeast (d) Spirogyra

Q.12. Which among the following does not reproduce by spore formation:

(a) Penicillium fungus (b) Yeast fungus (c) Mucor fungus (d) Rhizopus fungus

Q. 13. The rapid spreading of bread mould on slices of bread are due to:

(i) Presence of large number of spores in air

(ii) Presence of large number of thread-like branched hyphae

(iii) Presence of moisture and nutrients

(iv) Formation of round shaped sporangia

(a) (i) and (iii) (b) (ii) and (iv)

(c) (i) and (ii) (d) (iii) and (iv)

Q.14. The asexual reproduction in the Spirogyra involves:

(a) Breaking up of filaments into smaller bits

(b) Division of a cell into many cells

(c) Division of a cell into two cells

(d) Formation of a large number of buds

Q. 15. Reason for the greater similarities among the off springs produced by asexual reproduction, is:

(i) Asexual reproduction involves only one parent

(ii) Asexual reproduction involves two parents

(iii) Asexual reproduction involves gametes

(iv) Asexual reproduction does not involve gametes

(a) (i) and (ii (b) (i) and (iii)

(c) (ii) and (iv) (d) (i) and (iv)

Q. 16. The process of the division of cell into several cells during reproduction in Plasmodium is termed as:

(a) Fragmentation (b) Budding (c) Multiple fission (d) Binary fission

Q. 17. The number of chromosomes in parents and off springs of a particular species remains constant due to:

(a) Doubling of chromosomes after zygote formation

(b) Halving of chromosomes during gamete formation

(c) Doubling of chromosomes after gamete formation

(d) Halving of chromosomes after gamete formation

Q.18. A Planaria worm is cut horizontally in the middle into two halves P and Q such that the part P contains the whole head of the worm. Another Planaria worm is cut vertically into two halves R and S in such a way that both the cut pieces R and S contain half head each. Which of the cut pieces of the two Planaria worms could regenerate to form the complete respective worms?

(a) Only P (b) Only R and S (c) P, Rand S (d) P, Q, R and S

Q. 19. The number of chromosomes in both parents and off springs of a particular species remains constant because:

(a) Chromosomes get doubled after zygote formation

(b) Chromosomes get doubled after gamete formation

(c) Chromosomes get halved during gamete formation

(d) Chromosomes get halved after gamete formation

Q. 20. An organism capable of reproducing by two asexual reproduction methods one similar to the reproduction in yeast and the other similar to the reproduction in Planaria is:

(a) Spirogyra (b) Hydra (c) Bryophyllum (d) Paramecium

ANSWERS :- 1. (b) **2.** (d) **3.** (d) **4.** (d) **5**(a) **. 6.** (c)**7.** (c) **8.** (c) **9.** (c) **10.** (b)

11. (c) **12 .** (c) **13.** (a) **14.** (a) **15.** (d) **16.** (c) **17.** (b) **18.** (d) **19.** (c) **20.** (b)

ASSERTION REASON QUESTIONS:-

DIRECTION: Each of these questions contains an Assertion followed by Reason. Read them carefully and answer the question on the basis of following options. You have to select the one that best describes the two statements.

(a)Both A and R are true and R is the correct explanation of A.

(b)Both A and R are true but R is not the correct explanation of A.

(c)A is true but R is false.

(d)A is false but R is true.

Q.1. .**Assertion** (A): Spores are unicellular bodies.

Reason(R) : The parent body simply breaks up into smaller pieces on maturation.

Q.2. **Assertion**(A) : Asexual reproduction is a primitive type of reproduction.

Reason (R) : Asexual reproduction involves only mitotic cell division.

Q.3. **Assertion**(A) : The offspring produced by sexual reproduction is likely to adjust better in environmental fluctuation.

Reason (R) : During the fusion of gametes there is mixing of genetic material from Two parents.

Q.4. **Assertion** (A): Testes lie in penis outside the body.

Reason (R): Sperms require temperature lower than the body temperature for development

Q.5. **Assertion** (A): Unisexual flowers have separate male and female flowers whereas a typical monocot embryo comprises an embryonal axis with single cotyledon.

Reason (R): Cucumber, pumpkin and water melon are example of unisexual flowers.

ANSWERS - 1 .(c) 2 .)b) 3. (a) 4. (c) 5. (b)

CASE STUDY BASED QUESTION

Q.1. Read the following and answer the questions:

Preeti is very fond of gardening. She has different flowering plants in her garden. One Day few naughty children entered her garden and plucked many leaves of Bryophyllum plant And threw them here and there in the garden. After few days, Preeti observed that new Bryophyllum plants were coming out from the leaves which fell on the ground.

1.1. .What does the incidence sited in the paragraph indicate?

(a). Bryophyllum leaves have special buds that germinate to give rise to new plant.

(b). Bryophyllum can propagate vegetatively through leaves.

(c). Bryophyllum is a flowering plant that reproduces only asexually

(d). Both (a) and (b).

1.2..Which of the following plants can propagate vegetatively through leaves like Bryophyllum?

(a) Guava (b) Begonia (c) Ginger (d) Mint

1.3 .Do you think any other vegetative part of Bryophyllum can help in propagation? If yes, then which part?

(a) Roots (b) Stems (c) Flowers (d) Fruits

1.4. Which of the following plant is artificially propagated (vegetatively) by stem cuttings in horticultural practices?

(a). Potato (b) Snake plant (c) Rose (d) Water hyacinth

ANSWERS:

1.1. (d), 1.2. (b), 1.3. (b), 1.4. (c)

Q.2. Read the following and answer the questions:

Menstrual cycle is the cycle of events taking place in female reproductive organs, under the control of sex hormones, in every 28 days. At an interval of 28 days, a single egg is released from either of two ovaries. Regular Menstrual cycle stopped abruptly in a married women. She got herself tested and was happy to discover that she is pregnant with her first baby.

2.1. Why menstruation stops in a pregnant female?

(a)The egg gets fertilised so need not to be expelled out of body

(b) Ovulation stops during pregnancy and so do menstruation

(c) Thick uterine lining is needed for proper development of embryo, so that it is retained

(d) All of these

2.2. Select the correct sequence of acts that leads to pregnancy in a female.

A. Fertilisation of egg

B. Ovulation

C. Formation of zygote

D. Implantation

(a) D ⇒⇒C ⇒⇒B ⇒⇒A

(b) B⇒⇒ A⇒⇒C⇒⇒D

(c) A ⇒⇒ B⇒⇒ C⇒⇒ D

(d) D⇒⇒ C⇒⇒ A ⇒⇒B

2.3. How is a zygote different from embryo?

(a) Zygote is formed by repeated division of embryo

(b) Zygote is formed by fusion of sperm and egg whereas embryo is formed by fusion of zygote with other zygote

(c) Zygote is single celled but embryo is multicellular

(d) Zygote is formed by fertilisation but embryo is formed without fertilization

2.4. What change takes place in the uterus of a pregnant female?

(a) Uterine lining becomes thick and vascular

(b) Placenta develops which links the embryo to mother through umbilical cord

(c) Uterus lining containing lots of blood capillaries breaks down

(d) Both (a) and (b)

Answers - 2.1. (d) 2.2. (b) 2.3. (c) 2.4. (d)

Q.3. Read the following and answer the questions:

The growing size of the human population is a cause of concern for all people. The rate of birth and death in a given population will determine its size. Reproduction is the process by which organisms increase their population. The process of sexual maturation for reproduction is gradual and takes place while general body growth is still going on. Some degree of sexual maturation does not necessarily mean that the mind or body is ready for sexual acts or for having and bringing up children. Various contraceptive devices are being used by human beings to control the size of population.

3.1. What are common signs of sexual maturation in boys

a) Broadening of shoulders

b) Development of mammary glands

c) Broadening of waist

d) High pitch of voice

3.2. Common sign of sexual maturation in girls is

a) Low pitch voice b) Appearance of moustaches and beard

c) Development of mammary glands d) Broadening of shoulders

3.3. Which contraceptive method changes the hormonal balance of the body

a) Condoms b) Diaphragms

c) Oral pills d) Both a) and b)

3.4. What should be maintained for healthy society

a) Rate of birth and death rate b) Male and female sex ratio

c) Child sex ratio d) None of these

ANSWERS : - 3.1. (a) 3. 2. (c) 3.3. (c) 3.4. (b)

Q.4. Read the following and answer the questions:

The male reproductive system consist of portions which produce the germ-cells and other portions that deliver the germ-cells to the site of fertilisation. Testes are located outside the abdominal cavity in scrotum because sperm formation requires a lower temperature than normal body temperature.

It also has a role of secretion of male sex hormone which brings changes in appearance seen in boys at the time of puberty. Vas deferens unites with a tube coming from urinary bladder. Urethra is a common passage for sperms and urine. Prostate gland and seminal vesicles add their secretions so that sperms are now in fluid.

4.1. Name the sex hormone associated with males.

(a) Testosterone
(b) Progesterone
(c) Oestrogen
(d) None of these

4.2. Which of the following statements is incorrect ?

(a) Sperms are present in a fluid
(b) Fluid provides nutrition to sperms
(c) Fluid makes easier transportation of sperms
(d) Fluid helps to bind the sperms together

4.3. Testes are located outside the abdominal cavity in scrotum because

(a) sperms formation requires higher temperature than body temperature
(b) sperms formation requires lower temperature than body temperature
(c) it is easier to transport sperms from the scrotum
(d) None of these

4.4. Which of the following statement is incorrect?

(a) Sperms and urine has a common passage from urethra.
(b) Sperms have long tail that helps them to move forward.
(c) Sperms contain genetic material.
(d) Sperms formation requires 1–3°C higher temperature than normal body temperature.

4.5. What is the nature of semen?

(a) slightly acidic
(b) Neutral
(c) Slightly basic
(d) Strongly basic

ANSWERS – 4.1. (a) 4. 2. (d) 4.3. (b) 4.4. (d) 4. 5. (c)

Q.5. Read the following and answer the questions:

Reproduction is necessary for living things because it enables them to create offspring and continue their population. Through reproduction, they pass on their genetic information to the next generation. This ensures that their species continues to exist on Earth. The DNA copying mechanism is very necessary for the reproduction process as the copying of DNA can help in the transfer of the characters or information from the parents to the offspring. It can also generate the variations at the time of sexual reproduction. This variation is the reason behind the evolution. The DNA is the information site for making proteins and each specific type of protein leads to a specific type of body design and if DNA is not copied properly then offspring might face some serious abnormalities or might not even develop.

5.1. Incorrect DNA copying mechanism can lead to

a. Abnormalities of body.
b. Speeding the process of reproduction
c. Formation of same blueprint of body design
d. Production of same type of proteins

5.2. Choose the correct statements:

i. Human beings are bisexual organisms.
ii. Bisexual flower has both pistil and stamen.
iii. Plants bearing unisexual flower has only one type of flowers
iv. Both eggs and sperms are produced in one individual in hermaphrodite animal

a. i) and ii)
b. ii) and iii)
c. ii) and iv)
d. iii) and iv)

5.3. Monoeciousspecies have both male and female sexual organs or flowers. These male and female parts are located at different locations on the plant. Dioecious species have separate male and female plants. They do not have the male and female flowers on the same plant.

Choose the correct statement

Assertion: Monoecious and Dioecious plant bears unisexual flowers.

Reason: Monoecious species has only one type of plant and dioeciousspecies has two types of plant.

a. If both the assertion and the reason are true and the reason is a correct explanation of the assertion.
b. If both the assertion and the reason are true and the reason is not a correct explanation of the assertion.
c. If the assertion is true but the reason is false.
d. If both the assertion and reason are false.

5.4. Hari planted 100 Papaya plants. After few years he observed 75 plants have different pattern of flowering from the other 25 plants. He also found out that 75 plants having the same flowering pattern bear papaya fruits while the other 25 plants having the same pattern of flowering do not produce fruit. What may be the reason?

ANSWER – 5. 1. (a) 5.2. (c) 5. 3. (b)

5.4. Papaya plant is a dioecious plant having male and female reproductive organs in separate individuals. 75 papaya plants bear pistillate flowers and hence bear fruits while the remaining 25 plants bear staminate flowers and do not bear fruit.

Very Short answer type question -

Q. 1. Define vegetative propagation.

Ans - Vegetative propagation is *an asexual method of plant reproduction that occurs in its leaves,roots and stem*.

Q.2. What are the agents of pollination?

Ans - Pollinating agents can be animals such as insects, birds, and bats; water; wind; and even plants themselves,

Q. 3. Name the vegetative parts used in Bryophyllum and sugarcane for propagation.

Ans - Reproduction in Bryophyllum occurs asexually through vegetative propagation by leaves. The leaf of Bryophyllum is broad and has notches at its margins. ...

Sugarcane has a thick, tillering stem which is clearly divided into nodes and internodes.

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Q.4. Name any two organisms that reproduce by spores.

Ans - Rhizopus, mushroom etc., reproduce by spore formation

Q. 5. Name two sex hormones.

Ans - The two main sex hormones — **estrogen and testosterone**

Short answer type question –

Q.1. Define the terms unisexual and bisexual giving one example of each.

Ans - **Unisexual** is the plant whose flowers contain either stamens or carpels but not both. Example **Papaya, watermelon**.

Bisexual is the plant whose flowers contain both stamens and carpels. Example : **Hibiscus, Mustard**.

Q. 2. How does leishmania and Planaria reproduce differently ?

Ans- Leishmania reproduces by binary fission and Plasmodium reproduce by multiple fission.

ii) Binary fission- It occurs under favourable conditions and gives rise to two individuals .

multiple fission - It occurs under both favourable and unfavourable conditions and forms several individual.

Q. 3. How does bryophyllum produce new plants?

Ans- Bryophyllum can be reproduced by **vegetative propagation by using either a piece of its stem or leaves**. The leaves of a Bryophyllum plant have special buds in their margins which may get detached from the leaves, fall to the ground and then grow to produce a new plant.

Q. 4..How does rhizopus reproduce?

Ans -Fungi and some algae reproduce asexually through spores. Rhizopus is a fungus and is commonly called bread mould.
Rhizopus grows as fine thread-like projections known as hyphae. Present on the top of hyphae is a blob-like structure, called sporangia. Sporangia produce numerous reproductive bodies called spores. Spores germinate under moist conditions to grow into new Rhizopus species.

Q.5. Exlain how human embryo get nourished in mother body?

Ans - The embryo gets nourishment inside the mother body **through a special tissue called placenta**. The embryo grows inside the mother's womb and gets nourishment from mother's blood through the tissue called placenta. The placenta is a temporary organ that develops in the uterus during pregnancy.

Long answer type questions -

Q.1. Draw a human male reproductive system of a human and label the parts. Mention the function of vas deferens and ureter?

Ans- **Vas deferens**:The vas deferens is a long, muscular tube that travels from the epididymis into the pelvic cavity, to just behind the bladder. The vas deferens **transports mature sperm to the urethra in preparation for ejaculation**.

The **ureters** are the part of the urinary system, whose function is to **filter blood and create urine as a waste product**. The ureters' role in the process is to carry urine from the kidneys to the bladder.

Q.2. Draw a diagram of human female reproductive system and label the parts?

Ans -

Q. 3. Describe various methods of asexual reproduction in organisms with suitable examples?

Ans - Asexual reproduction:

1. It is a form of reproduction in which a single parent produces a new offspring.
2. The new individuals developed are exact copies of their parents.
3. They are clones of their parents.

Various methods of asexual reproduction:

Vegetative propagation

1. In vegetative propagation, new plants are produced from roots, stems, leaves, and buds.
2. It is a form of asexual reproduction.
3. **Examples-** Tuber of potato, the rhizome of ginger.

Budding

1. Bud is a small outgrowth that grows and gets detached from the parent body.
2. The new detached bud grows, matures, and produces more buds.
3. **Examples-** Hydra

Fragmentation

1. In this mode of reproduction, the growth is done by rapidly breaking down into more fragments.
2. When resources (water and nutrients) are available these fragments grow into new individuals.
3. **Examples-** Algae

Fission

1. Unicellular organism splits into new organisms.
2. There are two types of fission:

i. Binary fission (Amoeba, paramecium, etc.)
ii. Multiple fission (Plasmodium)

Spore Formation

1. Reproduction is done by spores.

Under favorable conditions germinate and develop into a new individual.

Q.4. Name and explain any three methods of contraception?

Ans - Three different methods of contraception:

1. Barrier method: Physical devices like condoms, diaphragm and cervical caps are used. The prevent entry of sperm in female genital tract, so, act as a barrier between them.

2.Chemical method: They act by changing hormonal balance of body so that eggs are not released and fertilisation cannot occur. Females use two types of pills for preventing pregnancies, that is oral pills and vaginal pills.

Oral pills has hormones that stop ovaries from releasing ovum into fallopian tube. It is also called oral contraceptives. Other contraceptive devices are loop or copper-T, are placed in uterus to prevent pregnancy.

3. Surgical method: They are carried out in males and females. In males, a small portion of the sperm duct (vas deferens) is blocked by surgical operation. It prevents the eggs to reach the uterus.

In females, fallopian tubes are cut and tied.

Q. 5. Mention the site and product of fertilization in a flower. Draw labelled diagram of a pistil showing the following parts: Stigma, Style and Ovary.

Ans - Site of fertilization: Ovary
Product of fertilization: Zygote