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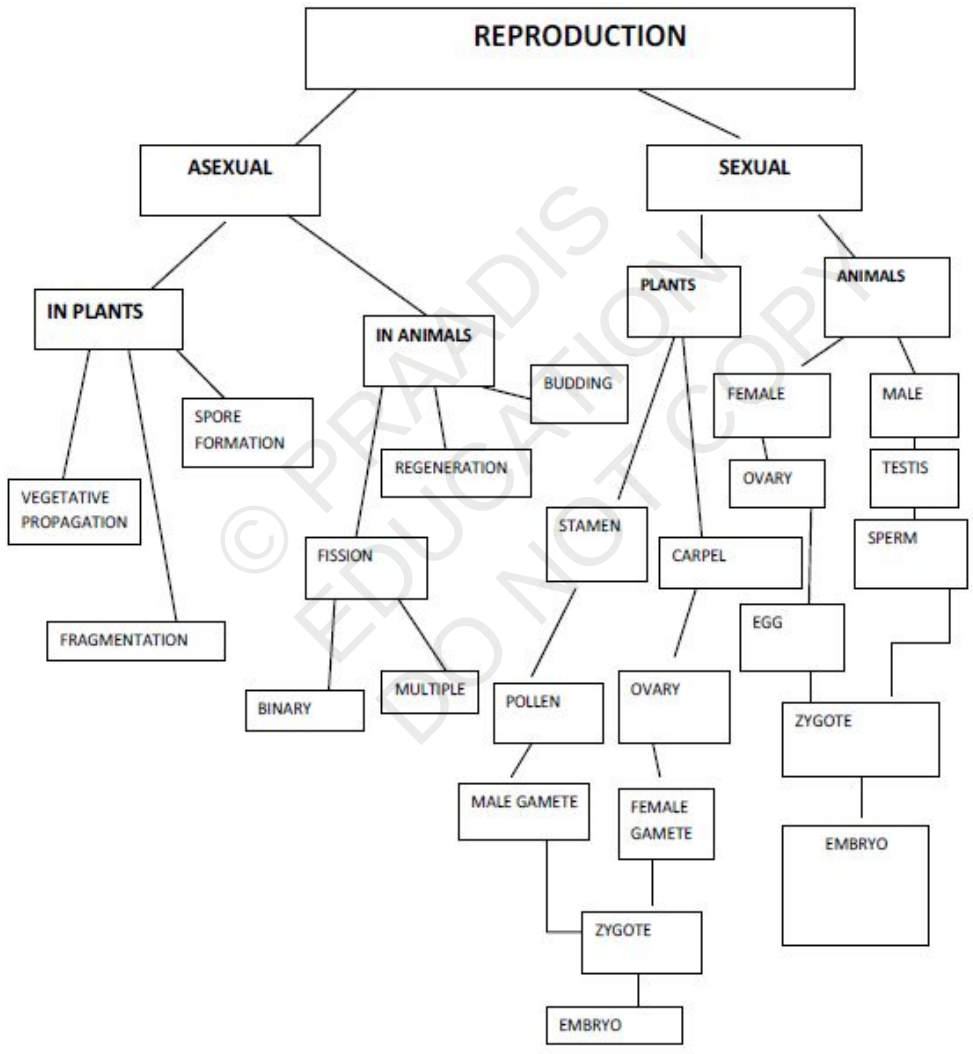
SCIENCE WORKSHEET SOLVED

REPRODUCTION IN ORGANISMS



MCQ

1) In the list of organisms given below, those that reproduce by the asexual method are
(i) banana
(ii) dog
(iii) yeast
(iv) Amoeba

(a) (ii) and (iv)
(b) (iii) and (iv)
(c) (i) and (iv)
(d) (ii), (iii) and (iv)

2) Offspring formed by asexual method of reproduction have greater similarity among themselves because

(i) asexual reproduction involves only one parent

(ii) asexual reproduction does not involve gametes

(iii) asexual reproduction occurs before sexual reproduction

(iv) asexual reproduction occurs after sexual reproduction

(a) (i) and (ii)

(b) (i) and (iii)

(c) (ii) and (iv)

(d) (iii) and (iv

3) The ability of a cell to divide into several cells during reproduction in Plasmodium is called

(a) budding

(b) reduction division

(c) binary fission

(d) multiple fission

DESCRIPTIVE QUESTIONS

4) Can you consider cell division as a type of reproduction in unicellular organism? Give one reason.

5) What is a clone? Why do offspring formed by asexual reproduction exhibit remarkable similarity?

6) Colonies of yeast fail to multiply in water, but multiply in sugar solution. Give one reason for this.

7) What is the importance of variation?

ASSERTION REASON :

8) Assertion(A) : Asexual reproduction is a primitive type of reproduction.
Reason (R) : Asexual reproduction involves only mitotic cell division.

9) 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.

ANSWERS

1)B) iii) and iv 2) A) i) and ii) 3) multiple fission

4) Yes, we can because in unicellular animals there is only one cell, when it will divide to form a new cell and hence new organisms.

male body the germ cells are called Sperm cells and in females Ova, both having half set of chromosomes.

QUESTIONS

MULTIPLE CHOICE QUESTIONS

1) Variations occur as a result of
(a) Asexual reproduction
(b) Vegetative propagation
(c) Sexual reproduction
(d) Regeneration

2) The number of chromosomes in parents and offsprings of a particular species remains constant due to
(a) doubling of chromosomes after zygote formation
(b) halved of chromosomes during gamete formation
(c) doubling of chromosomes after gamete formation
(d) halving of chromosomes after gamete formation

3) Factors responsible for the rapid spread of bread mould on slices of bread are
(i) large number of spores
(ii) availability of moisture and nutrients in bread
(iii) presence of tubular branched hyphae
(iv) formation of round shaped sporangia
(a) (i) and (iii)
(b) (ii) and (iv)
(c) (i) and (ii)
(d) (iii) and (iv)

4) How do spores develop into Rhizopus?
(a) Spores divide and grow into new individual
(b) Spores combine with other spores and grow
(c) Spores enlarge in size for the growth of new individual
(d) Spores land on other organisms and increase with their growth in size

5) In rhizopus tubular structure bearing sporangia at their tips are called _____.
(a) Filaments
(b) Rhizoids
(c) roots
(d) Hyphae

6) Cloning is a mode of :
(a) sexual reproduction
(b) asexual reproduction
(c) both a and b
(d) none

7) **Vegetative propagation refers to formation of new plants from———-.**
(a) stem, roots, flowers
(b) stem, roots, leaves
(c) stem, flowers, fruit
(d) stem, leaves, flowers

8) Priya was writing some statements; help her to choose the correct one.
(a) The existing organisms are called parent and the new organisms produced by them are called offspring.
(b) The production of new organisms from a single parent without the involvement of sex cells or gametes is called sexual reproduction.
(c) The production of a new organism from two parents by making use of their sex cells or gametes is called asexual reproduction.
(d) All the above

9) In the last year board examination Rahul was asked a question where he had to choose the statement which was /were incorrect. Will you be able to answer the question

(a) In vegetative propagation, new plants are obtained from the parts of old plants without the help of any reproductive organs.

(b) It is necessary to plant the whole potato tuber in the ground to produce the new potato plants.

(c) Bryophyllum plants can be reproduced by vegetative reproduction by using either a piece of its stem or its leaves.

(d) The green grass grows in the fields after range from the dry, old stems of grass plants present in the fields, by the method of vegetative propagation.

10) Plants like banana, rose ,jasmine ,orange have lost the capacity to produce
(a) Seeds
(b) Buds
(c) Flowers
(d) Roots

Descriptive questions

11) **List the advantages of vegetative propagation.**
12) **Explain various steps of budding in yeast.**
13) **What is the importance of reproduction?**
14) **How are spores produced in sporangium of Rhizopus?**
15) **What is the importance of DNA copying in reproduction?**
16) What are the limitation of the asexual mode of reproduction? differentiate between asexual reproduction and sexual reproduction.
17) What are the various methods of vegetative propagation? Discuss any one method with example.

ANSWERS:

1. (c), 2. (b) , 3. (c) , 4. (a) , 5. (d) , 6. (b) ,7. (b) , 8. (a) ,9. (b), 10. (a)

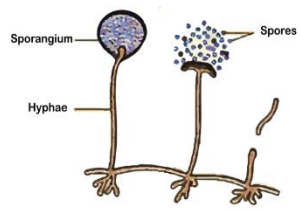
11. The advantages of vegetative propagation are as follows
• It helps in the easy propagation of non–flowering plants.
• It helps in producing hybrids of various plants, with improved qualities.
• It helps in the propagation of a large number of populations in a very short duration.
• It helps in the propagation of plants that do not produce seeds or produce them in very small quantities.

12. Budding is a form of asexual reproduction usually observed in yeast.
• During this process, a small protrusion appears on the upper portion of the body of the organism. This bulge is called a bud.
• The bud gradually grows in size and forms an individual cell.
• From this newly budded cell, another bud appears at the tip.
• This process continues and a chain of

c) Role in evolution – some variations is produced in the new organisms during reproduction which play an important role in evolution. yeast cells is obtained.

13. Importance of reproduction –
Maintenance of the existence – Organisms are maintaining their existence on the earth since their origin, million year ago, only because of reproduction.
b) Preservation of species – Species (a group of similar organisms) are preserved because of reproduction. It is possible because reproducing organisms produce new individuals which are very similar to themselves.

14. **a)** A spore is a small microscopic structure with a thick wall.
b) Spores are generally formed in a structure called sporangium which reassembles formed in a structure called sporangium which resemble blob on – a – stick.
c) Sporangia are formed at the tip of erect fungal hypha.
d) In each sporangium, a nucleus divides several times producing a large number of nuclei. Nuclei get surrounded by a little cytoplasm and develop into thick – walled cells or spores.
e) The wall of sporangium breaks to release the spores in air.
f) On germination in the presence of moist surface, each spore gives rise to a new organism.



Spore formation in **Rhizopus**

15. DNA contains information for the inheritance of features from parents to next generation. DNA presents in nucleus of cells are the information source for making protein. If information is different, different protein will be made that lead to altered body design.

16. In asexual reproduction very little variation occurs within generation. Asexual reproduction has a lesser significance for evolution of species.
Asexual reproduction involves only a single individual. It does not require two sexes. Sexual reproduction involves two different individuals, male and female sexes. The offspring is produced due to fission of male and female gametes.

17. The various types of vegetative propagation are

- Cutting
- Layering
- Grafting
- Parthenogenesis
- Micro-propagation in vitro
- Grafting
- It is a method in which two parts of different plants are joined together in such a way that they unite and grow as one plant.
- The portion of the plant that is grafted onto another plant is known as the scion, and the plant on which grafting is performed is known as the stock.
- The stock and the scion are tied in such a way that the cambium of the scion and the stock come in contact with each other.
- The stock is so chosen that it possesses qualities like disease resistance, high water absorbing capacity, deep penetrating roots for a firm hold, etc. The scion is so chosen that it possesses qualities like high yield of pulp or seeds (as desired) from a single fruit, etc.
- For example, citrus-root stock is used for a variety of grafts like sweet orange, lime, grape, etc.

ASSERTION (A) AND REASON (R) TYPE QUESTIONS

Following statements consists of two statements- Assertion (A) and Reason (R) . Answer these questions selecting the appropriate option given below:
(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.

18.**Assertion (A):** Spores are unicellular bodies.
Reason(R) : The parent body simply breaks up into smaller pieces on maturation.
19**.Assertion:** The offsprings produced by sexual reproduction is likely to adjust better in environmental fluctuation.
Reason: During the fusion of gametes there is a mixing of genetic material from two parents.

CASE STUDY BASED QUESTION

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.

20.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* an propagate vegetatively through leaves.
(c). *Bryophyllum* is a flowering plant that reproduces only asexually
(d). Both (a) and (b).

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

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

22.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

23.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:

18. (c) , 19. (a) 20. (d), 21. (b), 22. (b), 23. (c).

Questions

MCQ

1.The transfer of pollen from the anther to stigma is called…….
(a)Fusion (b)fertilization (c)Pollination (d)Vegetative propagation

2.Along the path of the vas-deferens the secretions of which gland provide nutrition to the sperms?
(a) Prostate glands (b) Seminal vesicles(c) Scrotum(d) Urinary bladder

3. Fruits are formed from
a. Stamen b. Stigma c. Ovary d. Ovule

4. Which of the following is the correct sequence of events of sexual reproduction in a flower?
a) pollination, fertilisation, seedling, embryo
(b) seedling, embryo, fertilisation, pollination
(c) pollination, fertilisation, embryo, seedling
(d) embryo, seedling, pollination, fertilisation

5. Length of pollen tube depends on the distance between

(a) pollen grain and upper surface of stigma
(b) pollen grain on upper surface of stigma and ovule
(c) pollen grain in anther and upper surface of stigma
(d) upper surface of stigma and lower part of style

DESCRIPTVE TYPE QUESTIONS

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

2.(a) Draw a diagram showing germination of pollen on stigma of a flower.
(b) Label pollen grain, male germ- cells, pollen tube and female germ-cell in the above diagram.
(c) How is zygote formed?

3.List any three differences between pollination and fertilisation.

4.Draw a longitudinal section of a flower and label the following parts:
(i) Part that produces pollen grain.

(ii)Part that transfers male gametes to the female gametes.
(iii) Part that is sticky to trap the pollen grain.
(iv) Part that develops into a fruit.

5.Name the female reproductive part of a flower. Which part of a flower develops into a seed and a fruit? Where are the male germ cell and female gamete present in the flower?

Answers MCQ

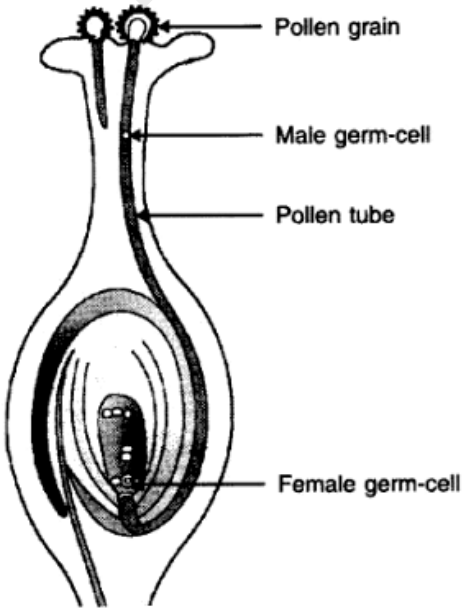
1.c. pollination
2.a. prostrate glands
3.c.ovary
4. pollination, fertilisation,embryo, seedling
5.b.pollengrain on upper surface of stigma and ovule.

Descriptive Questions

1. The flowers which contain only the male or female reproductive organs are called unisexual flowers. They are called incomplete flowers. To reproduce they undergo cross-pollination. Examples: Papaya, White mulberry and Watermelon.

The flowers which contain both male and female reproductive organs are known as full or bisexual flowers. They will self-pollinate themselves. Examples: Tulip, Sunflower and Lily.

2.a and b



C. Zygote is formed when male gamete fuses with the egg.

3.

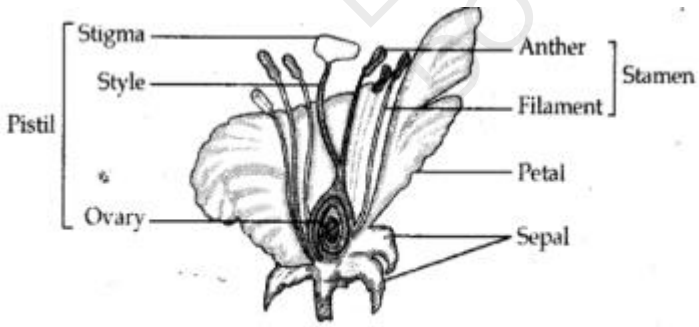
S. No.	Pollination	Fertilization
1.	It is the transfer of pollen grains from anther to stigma of a flower.	It is the process of fusion of male gamete and female gamete resulting in the formation of zygote. **[1]**
2.	Pollination facilitates formation of pollen tube which carries male gamete to the ovule.	Zygote later develops into embryo. **[1]**
3.	In this process, carrying agents are needed.	No carrying agents are needed in this process. **[1]**
4.	Occurs only in higher plants.	Occurs in all sexually reproducing organisms.

4 i)anther

ii)pollen tube

iii) stigma

iv)ovary



Longitudinal section of a flower

5. Female reproductive part of a flower is pistil. Ovary develops into fruit and ovule into seed. Male germ cell is present in pollen grain and female germ cell in the ovary.

ASSERTION REASON QUESTIONS

1. Assertion (A): Testes lie in penis outside the body.
Reason (R): Sperms require temperature lower than the body temperature for development

2. 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.

CASE STUDY 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.
(i) 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

(ii) 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) **(b)**
D ⇒⇒C ⇒⇒B ⇒⇒A **B⇒⇒ A⇒⇒C⇒⇒D**

(c) **(d)**
A ⇒⇒ B⇒⇒ C⇒⇒ D **D⇒⇒ C⇒⇒ A ⇒⇒B**

(iii) 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 fertilisation

(iv) 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

1. Assertion is false, reason is true.

2. Answer: both A and R are true but R is not the correct explanation for A.

- I-d
- II-b
- III-c
- IV-d

SEXUAL REPRODUCTION IN HUMAN BEING

QUESTION ANSWERS

MULTIPLE CHOICE QUESTIONS

1) Which of the following methods of contraception protects from acquiring sexually transmitted diseases?

a) Surgery
b) Condoms
c) Copper T
d) Oral pills

2) The embryo in humans get nourishment from mother's blood with the help of special tissue called

a) Placenta
b) Villi
c) Uterus
d) Womb

3) The fertilization of human egg by sperm takes place in

a) Vagina
b) Uterus
c) Oviduct
d) Ovary

4) The process of release of eggs from the ovary is called

a) Menstruation
b) Reproduction
c) Ovulation
d) Insemination

5) Which among the following diseases is not sexually transmitted?

(a) Syphyllis
(b) Hepatitis
(c) HIV-AIDS
(d) Gonorrhea

6) In case the ova does not fertilise which of the following events will take place?
a) Menstruation
b) Pregnancy
c) Implantation
d) ovulation

DESCRIPTIVE QUESTIONS

7) Name the male and female gametes in animals. What is fertilization and where does it take place in human females ?

8) Surgical methods can be used to create a block in the reproductive system for contraceptive purposes. Name such parts where blocks are created in

(a) Males and Females.

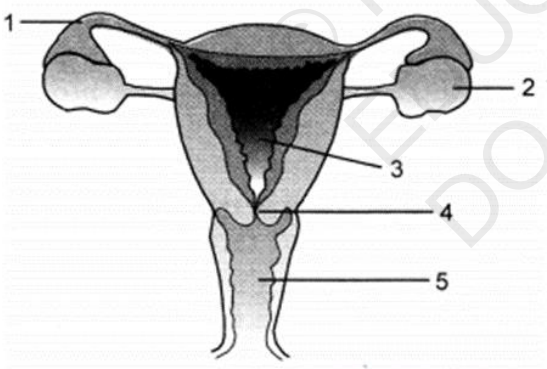
(b) State any two reasons for using contraceptive devices.

9) Prenatal sex determination has been prohibited by law. State two reasons.

10) What is placenta? State its two roles during pregnancy.

11) (a) Name the parts 1 to 5 of human female reproductive system.

(b) Name the part in which fertilization takes place in the system



(b) Fallopian tube.

CASE STUDY BASED 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.

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
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) Which contraceptive method changes the hormonal balance of the body
    a) Condoms
    b) Diaphragms
    c) Oral pills
    d) Both a) and b)
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

ASSERTION REASON QUESTIONS:

1.Assertion -Ovary releases one every month.
Reason-the lining of the uterus is always thick and spongy.

2.**Assertion-** Surgical methods are most effective methods of contraception.
Reason-Surgical methods block gametes transport and hence prevent fertilization.

ASSERTION REASON
Answer -c A is true but R is false.
Answer Option A is correct