

CBSE Class 10 Science Important Questions and Answers

UNIT II WORLD OF LIVING

Chapter 7 How Do Organisms Reproduce

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

ANSWER: b

Q. 2. Where does fertilisation occur in human females?

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

ANSWER: c

Q. 3. IUCD is for

- a. Vegetative propagation
b. Contraception
c. Increasing fertility
d. Avoiding miscarriage

ANSWER: b

Q. 4. Which is the portion on which grafting is done that provides the roots?

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

ANSWER: a

Q. 5. When an 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

ANSWER: d

Q. 6. Which among the following does not reproduce by spore formation:

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

ANSWER: c

Q. 7. What is the puberty age in human males?

(a) (i) and (ii)

(b) (i) and (iii)

(c) (ii) and (iv)

(d) (i) and (iv)

ANSWER: d

Q. 9. Fruits are formed from

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

ANSWER: c

Q. 10. 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

ANSWER: 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.*

1. Assertion: Unisexual flowers have separate male and female Organs.

Reason: Cucumber, pumpkin and watermelon are example of unisexual flowers.

ANSWER: B

2. Assertion: Condom is a safe contraceptive method to prevent pregnancy

Reason: Condom prevent transmission of infection during sexual act

ANSWER: A

3. Assertion: Testes lie outside the body.

Reason: Sperms require a temperature lower than the body temperature for development.

ANSWER: A

4. Assertion: Spores are unicellular bodies.

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

ANSWER: C

5. Assertion: Ovary is not an organ in the female reproductive system.

Reason: Ovary secrete female sex hormones estrogen and progesterone.

ANSWER: D

6. Assertion: Surgical methods are most effective methods of contraception.

Reason: Surgical methods block gametes' transport and hence prevent fertilization.

ANSWER: A

7. Assertion: Fertilisation will not occur in the absence of pollination.

Reason: Pollination brings male gametes closer to the female reproductive part of the flower.

ANSWER: A

ANSWER: D

9. Assertion: Sexual reproduction involves two parents of different sexes, a male and a female

Reason: Male and female gametes fuse to form a zygote in sexual reproduction

ANSWER: B

10. Assertion: In internal fertilization male and female gametes fuse inside the female body

Reason: In all fishes fertilization takes place internally

ANSWER: C

11. Assertion: The size of human population is a cause for concern for many people .

Reason: An expanding population makes it harder to improve everybody's standard of living.

ANSWER: A

12. Assertion: Urethra in human male acts as urino-genital canal.

Reason: Urethra carries only urine while sperms are carried by vas deferens only.

ANSWER: C

13. 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.

ANSWER: C

14. Assertion : Ovary lies at the lower part of the stamen.

Reason: Ovary in the flower produces ovules.

ANSWER: D

15. Assertion: Warts is a sexually transmitted disease.

Reason: Warts are caused by bacteria.

ANSWER: C

CASE STUDY BASED QUESTIONS:

1 Germination starts with the rapid intake of water by the seed through its micropyle. The first visible indication of germination is the swelling of the seed with a resultant increase in weight. It is also accompanied by the softening of the seed coat. Absorption of water causes a number of physiological changes in the seed. Germinating seeds exhibit increased respiratory activity. The embryo produces enzymes which convert the food materials stored in the cotyledons into soluble form usable by the growing embryo. Once the food is made available, cell division activity starts in the growing embryo. The growth of the embryonic tissue ruptures the seed coat.

(i) Which of the following is not connected with the germination of seed.

- (a) It swells
- (b) The seed coat softened
- (c) It exhibits photosynthesis
- (d) It exhibits respiration

(ii) Which among the following are true

(i) Radicle develops into root

(ii) Radicle develops into shoot

(iii) Plumule develops into root

(iii) Plumule develops into shoot

- (a) (i) and (ii)
- (b) (i) and (iii)
- (c) (i) and (iv)
- (d) (ii) and (iv)\

(iii) Which of the following is a part of seed.

- (a) Embryo
- (b) Radicle
- (c) Plumule
- (d) All of the above

(iv) The condition needed for the germination of the seed

- (a) Moisture

- (b) Temperature
- (c) Both (A) and (b)
- (d) None of the above

ANSWERS:

- I. C**
- II. C**
- III. D**
- IV. C**

2 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 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

2) Which contraceptive method changes the hormonal balance of the body?

- a) Condoms
- b) Diaphragms
- c) Oral pills
- d) Both a) and b)

3) Common sign of sexual maturation in girls is

- a) Low pitch voice
- b) Appearance of moustache and beard
- c) Development of mammary glands
- d) Broadening of shoulders

4) What are common signs of sexual maturation in boys?

DESCRIPTIVE QUESTIONS:

1) Newly formed DNA copies may not be identical at times. Give one reason.

ANSWER: When a cell reproduces, DNA replication occurs which results in formation of two similar copies of DNA. The process of copying the DNA leads to some variations each time. As a result, the DNA copies produced are similar to each other but sometimes may not be identical.

2) Where is the zygote located in the flower after fertilization?

ANSWER: Zygote is formed inside an ovule present in the ovary of the carpel.

3) How does Plasmodium reproduce? Is this method sexual or asexual?

ANSWER: Plasmodium reproduces through multiple fission method. In this method, the parent organism splits to form many new organisms at the same time. This is an asexual method of reproduction.

4) Name the part of Bryophyllum where the buds are produced for vegetative propagation.

ANSWER: Bryophyllum propagates vegetatively by the buds produced at the margins of leaves.

5) Name the method by which Spirogyra reproduces under favourable conditions. Is this method sexual or asexual?

ANSWER: The method by which Spirogyra reproduces under favourable conditions is fragmentation. This is an asexual mode of reproduction.

6) Name the causative agent of the disease “kala-azar” and its mode of asexual reproduction

ANSWER: Causative agent of the disease Kala-azar is Leishmania. It reproduces asexually by binary fission.

7) In a bisexual flower in spite of the young stamens removed artificially, the flower produces fruit. Provide a suitable explanation for the above situation.

ANSWER: In such flowers, the female reproductive part is present and hence these flowers can be cross pollinated to produce fruit.

8) Define vegetative propagation.

ANSWER: Vegetative propagation is an asexual method of plant reproduction that occurs in its leaves, roots and stem.

9) Name two sex hormones.

ANSWER: The two main sex hormones — estrogen and testosterone

10) What are the agents of pollination?

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

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

ANSWER: 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.

12) What are the limitations of the asexual mode of reproduction? Differentiate between asexual reproduction and sexual reproduction.

ANSWER: In asexual reproduction very little variation occurs within a 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.

13) Explain how human embryo get nourished in mother body?

ANSWER: 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.

14) How do Plasmodium and Leishmania reproduce? Write one difference in their mode of reproduction.

ANSWER: Plasmodium and Leishmania reproduce by the process of fission which is an asexual mode of reproduction. Plasmodium reproduces by multiple fission. About 1000 daughter cells are produced by the multiple fission of a Plasmodium. Leishmania reproduces by the process of binary fission. In Leishmania, the splitting of parent cell takes place in a definite plane (longitudinally) with respect to flagellum at its end to produce two daughter cells.

15) 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?

ANSWER: 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.

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

ANSWER: Male gamete in animal – sperm Female gamete in animal- ovum

Fertilisation- Fusion of male and female gametes to form zygote Fertilisation takes place in fallopian tube in females

17) Name an organism which reproduces by spore formation. List three conditions favourable for spores to germinate and grow.

ANSWER: Rhizopus reproduce by the method of spore formation. The three conditions favourable for spores to germinate and grow are moisture, suitable temperature and food (nutrition).

18) What is the importance of variation in the survival of individuals?

ANSWER: Variations help in survival of the organism by many different ways-

(i) It helps a species to survive

(ii) It also helps organisms to adapt to their environment as well as to changes which do occur in the environment.

(iii) It also helps a species to emerge strongly favoured by natural selection.

(iv) Variation helps a species to be resistant to diseases.

19) Name and explain any three methods of contraception?

ANSWER: Three different methods of contraception -

1. Barrier method: Physical devices like condoms, diaphragm and cervical caps are used. They prevent the entry of sperm in the 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 have hormones that stop ovaries from releasing ovum into the fallopian tube. It is also called oral contraceptives. Other contraceptive devices are loop or copper-T, which are placed in the 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.

20) List the advantages of vegetative propagation

ANSWER: 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.**

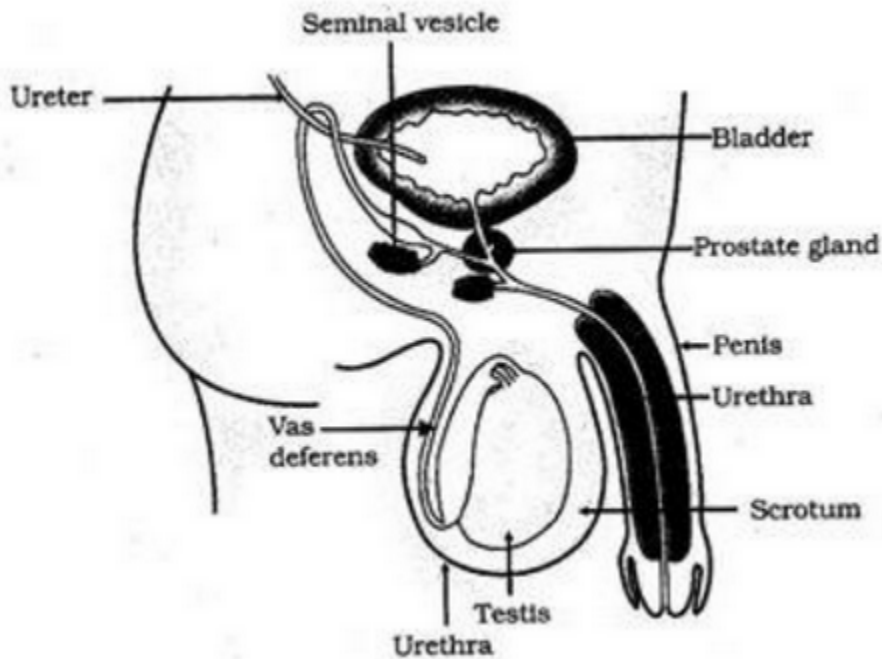
- It helps in the propagation of plants that do not produce seeds or produce them in very small quantities.

21) Explain various steps of budding in yeast.

ANSWER: 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 many chains of buds are formed.

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



ANSWER: 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.

ANSWER: The production of new organisms by the existing organisms of the same species is known as reproduction. It is linked to the stability of population of a species. DNA replication during reproduction ensures transfer of specific characters or body design features that is essential for an individual of a population to live and use that particular niche. Some variations present in a few individuals of population caused due to reproduction which also helps in their survival at changing niches.

24) Name the mode of reproduction of the following organisms and state the important feature of each mode :

I. Planaria

II. Hydra

III. Rhizopus

a) We can develop new plants from the leaves of Bryophyllum. Comment.

b) List two advantages of vegetative propagation over other modes of reproduction.

ANSWER: (i) Planaria – Regeneration

Regeneration of organism from its cut body parts occurs by the process of growth and development. Regeneration is an asexual mode of reproduction common in lower plants and animals.

(ii) Hydra – Budding

In budding, a small part of the body of the parent organism grows out as a bud which on detaching forms a new organism. Budding occurs in yeast, some protozoans and certain lower animals.

(iii) Rhizopus – Spores

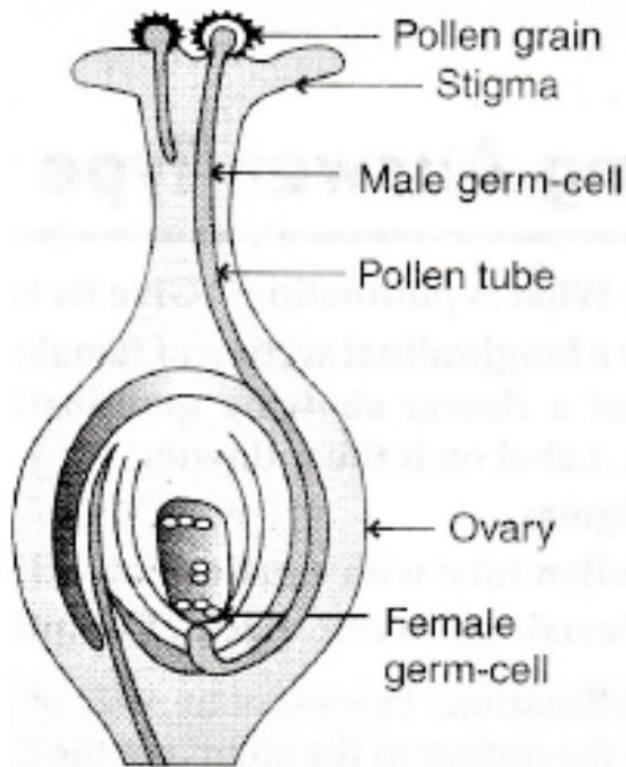
Spores are usually produced in sporangia. Spore formation is a common method of an asexual reproduction in bacteria and most of the fungi.

a) The leaves of a Bryophyllum have special type of buds in their margins. These buds may get detached from the leaves, fall to ground and then grow to produce new Bryophyllum plants. The buds can also drop to the ground together with the leaf and then grow to produce new plants.

b) Advantages of vegetative propagation are: It is a quick method of propagation. The new plants produced by artificial vegetative propagation are exactly like the parent plants.

25) Draw a diagram showing germination of pollen on the stigma of a flower.

ANSWER:



26) Draw a human female reproductive system of a human and label the parts.

ANSWER:

