

How Do organisms Reproduce?

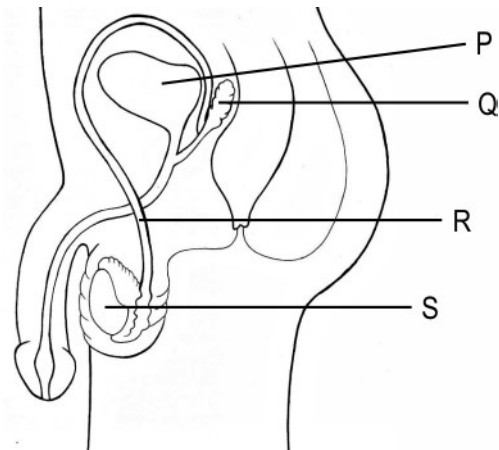
Q: 1 Two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements A and R.

Assertion (A): Oral contraceptive pills and copper-T do not prevent sexually transmitted diseases.

Reason (R): Sexually transmitted disease are transmitted by contact with mucous membranes of infected organs.

- 1** Both A and R are true and R is the correct explanation of A.
- 2** Both A and R are true but R is not the correct explanation of A.
- 3** A is true but R is false.
- 4** A is false but R is true.

Q: 2 The diagram below represents the male human reproductive system.



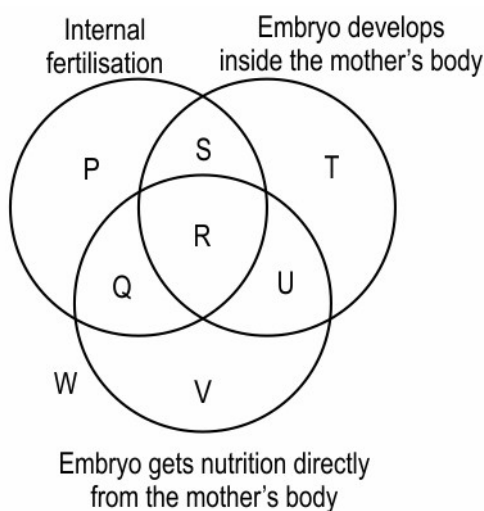
Identify the part that is responsible for the secretion of testosterone.

- 1** P
- 2** Q
- 3** R
- 4** S

Q: 3 "The biological sex of an individual only depends on the sperm cell." [1]

Is the above statement true or false? Justify your answer.

In the diagram below, each labelled region (P to W) represents a certain combination of reproductive processes found in an animal. Each labelled region is characterised by the different circles that it is (or is not) a part of.



Answer the following questions based on this diagram.

Q: 4 Name any one animal whose mode of reproduction is represented by region P. [1]

Q: 5 The description of a species of fish called 'guppy' is given below: [2]

"Guppies are live-bearing fish, with a gestation period of 21-30 days. Once inseminated, female guppies can store sperm in their ovaries, which can continue to fertilize ova up to eight months, meaning the female mate can give birth to the male's offspring long after the male's death."

(a) Based on the given information, which labelled regions CAN guppies belong to?

(b) What additional information is required to identify the labelled region in the diagram that guppies ACTUALLY belong to?

Q: 6 'In vitro fertilisation' is a process of fusing a human egg and sperm outside a woman's body, in a laboratory. After fertilisation, the zygote is allowed to develop into an embryo for 2-6 days. The embryo is then implanted in the woman's uterus, where it develops normally. [1]

Which labelled region in the diagram BEST represents reproduction via in vitro fertilisation?

Bindu wants to produce a hybrid variety of tomatoes. She has tomato plants X and Y belonging to two different varieties, one with smooth, long fruits and the other one with wrinkled, round fruits.

Tomatoes have bisexual flowers. Bindu carries out the following steps carefully to cross pollinate the flowers of plants X and Y:

1. She removes a part of the flowers of tomato plant X just before the flowers bloom.
2. She manually pollinates the flowers of tomato plant X using pollen from the flowers of tomato

plant Y.

3. She ties small plastic bags around the pollinated flowers of tomato plant X. The plastic bags are removed after a couple of days.

Q: 7 Bindu carried out step 1 so as to prevent self-pollination. Which part did she remove? [1]

Q: 8 Plants produced through vegetative propagation are genetically identical to their parents. [1]

What could be the biggest disadvantage of vegetative propagation?

Q: 9 A farmer bought some strawberries and liked the taste. He decided to grow his own strawberries that should have the same taste. [2]

(a) Which method of cultivation should the farmer adopt?

(b) Why would the farmer choose this method?

Q: 10 What could be the TWO most likely reasons for unicellular organisms to reproduce only through asexual reproduction? [2]

Q: 11 Planarians can regenerate lost body parts due to the presence of specialised cells called neoblasts. These specialised cells multiply and make a large mass of cells from which different cells undergo changes to become different types of cells and tissues. [3]

(a) In plants, in which type of tissue are cells that have a function similar to neoblasts found?

(b) How do the characteristics of a planarium formed by regeneration compare with the characteristics of the original planarium? Justify your answer.



The table below gives the correct answer for each multiple-choice question in this test.

Q.No	Correct Answers
1	1
2	4
3	1



Q.No	Teacher should award marks if students have done the following:	Marks
4	True. All egg cell contains only X chromosome. It is the sperm that may contain an X or a Y chromosome and so depending on which sperm unites with the egg, the biological sex of the individual is determined.	1
5	Any animal that lays eggs after internal fertilisation such as birds, lizards, etc.	1
6	(a) R or S [0.5 marks for each] (b) whether the embryo gets nutrition directly from the mother's body [1 mark]	2
7	U	1
8	stamens/anthers	1
9	1 mark for any disadvantage such as: - Both the parent plant and the progeny will be susceptible to same pathogen which can wipe out the entire population. - less genetic diversity as no new variety will be produced	1
10	(a) asexual reproduction / vegetative propagation	1
	(b) because fruit produced through vegetative propagation would carry conserved parental characteristics	1
11	1 mark each for any two reasons such as: - They can produce a large number of offsprings in a small period of time. - The offsprings are adapted to survive in the same environment.	2
12	(a) meristematic tissue	1
	(b) 1 mark each for the following: - They will be the same. - Regeneration does not involve the mixing of gametes.	2

