

- Q1.** What is the importance of DNA copying in reproduction?
- Q2.** Why is variation beneficial to the species but not necessarily for the individual?
- Q3.** How does reproduction help in providing stability to populations of species.
- Q4.** How does binary fission differ from multiple fission?
- Q5.** How will an organism be benefited if it reproduces through spores?
- Q6.** Can you think of reasons why more complex organisms cannot give rise to new individuals through regeneration?
- Q7.** Why is vegetative propagation practised for growing some types of plants?
- Q8.** How is the process of pollination different from fertilisation?
- Q9.** What is the role of the seminal vesicles and the prostate gland?
- Q10.** How does the embryo get nourishment inside the mother's body?
- Q11.** If a woman is using a copper-T, will it help in protecting her sexually transmitted diseases?
- Q12.** What are the advantages of sexual reproduction over asexual reproduction?
- Q13.** What are the functions performed by the testis in human beings?
- Q14.** Why does menstruation occur?
- Q15.** How are the modes for reproduction different in unicellular and multicellular organism?
- Q16.** What are the changes seen in girls at the time of puberty? At what age girls achieve puberty.
- Q17.** Draw a labelled diagram of the longitudinal section of a flower.
- Q18.** What are the different methods of contraception?
- Q19.** What could be the reasons for adopting contraceptive methods?

**S1.** DNA contains information for inheritance of features from parents to next generation.

During reproduction, a parent cell may directly give rise to the daughter cell, or indirectly by formation of gametes. In either case, the new cell produced must contain information present in the parent cell to form its own proteins. Thus DNA copying is essential, so that the daughter cells may have their own sets of chromosomes, having same information, as that in the parent cell.

**S2.** In changed environmental conditions, certain variations may be useful. If a species survived in a particular kind of environment, for *e.g.*, in neutral pH and certain variation occurred in some of its members of the population. Then under changed pH conditions, say more basic, the variation that really didn't matter in neutral pH, may help in survival of these variants. Thus, whereas most other organisms may have been wiped out, but few survive due to the species.

**S3.** Reproduction results in production of more organisms of a type. Since there is copying of DNA involved, which may result in variation. Thus, reproduction provides stability as variation helps in better adaptability of a species.

**S4.** Differences between binary fission and multiple fission:

Binary fission	Multiple fission
<ul style="list-style-type: none"> <li>Parent cell splits into two daughter cells.</li> <li>Hence only one copy of DNA is made <i>e.g.</i>, <i>Amoeba</i>.</li> </ul>	<ul style="list-style-type: none"> <li>Parent cell splits into many daughter cells.</li> <li>Many copies of DNA could be made. <i>e.g.</i>, Malarial parasite.</li> </ul>

**S5.** The spores are covered by thick walls that protect them until they come into contact with suitable moist surface and can begin to grow. Thus spores help in survival of an organism during unfavourable conditions, until the return of suitable conditions. Spores are very light and easy to carry upto flowers at long distance.

**S6.** Complex organism have division of labour in their body, to avoid duplication of efforts. Thus they have specialized organs to perform specific functions. Through regeneration, it will not always be possible to differentiate in all types of cells.

Thus, more complex organisms use more complex ways of reproduction.

- S7.** (a) Plants raised by vegetative propagation can bear flower and fruits earlier than those produced from seeds.
- (b) Such methods also make possible the propagation of plants such as banana, orange, rose and jasmine that have lost the capacity to produce seeds.
- (c) All plants produced by this method are genetically similar enough to the parent plant to have its all characteristics.
- (d) Thus, desired features of parent plant can be retained and expressed without any change in future generations.

**S8.** Distinction between pollination and fertilisation:

Pollination	Fertilisation
<ul style="list-style-type: none"> <li>Pollination refers to the process of transfer of pollen grains from anther of a flower to the stigma of either same flower or any other flower of same species.</li> <li>Pollination leads to fertilisation.</li> </ul>	<ul style="list-style-type: none"> <li>Fertilisation refers to fusion of male gamete and female gamete to form a zygote.</li> <li>Fertilisation is the result of pollination.</li> </ul>

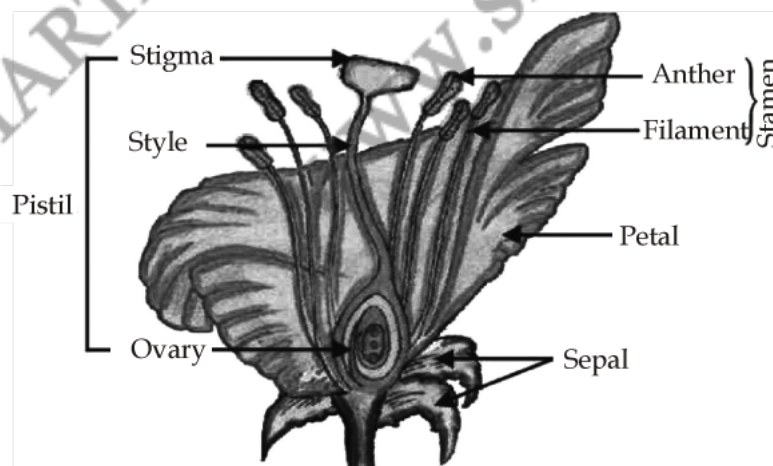
- S9.** (a) Secretions of seminal vesicles and prostate gland provide fluid medium for sperms to swim.  
 (b) Provides nutrition for them.  
 (c) Provides right pH for their survival.
- S10.** The embryo gets nutrition from the mother's blood with the help of a special tissue called placenta. This is a disc which is embedded in the wall of the uterus. It contains finger-like projections villi on the embryo's side of the tissue. On the mother's sides are blood spaces, which surround the villi. This provides a large surface area for glucose and oxygen to pass from the mother to the embryo and waste products from embryo to mother.
- S11.** Copper-T is an intra-uterine device and does not allow fertilisation to take place. Since it does not provide any barrier against mixing of body fluids from two individuals therefore acts only as contraceptive but does not provide protection against STDs.
- S12.** In sexual reproduction there is mixing of genotypes of two different individuals, which results in greater variation. These variations are essential for survival of species. Thus, sexual reproduction is more advantageous.
- S13.** In human beings, testis performs dual function:  
 (a) Production of sperms. (b) Secretion of male hormone testosterone.
- S14.** Since we are mammals, the development of growing foetus takes place inside the mother's womb. Thus, during each cycle, the uterus prepares itself for implantation by increasing blood flow and thickening of uterine walls. In case, fertilisation does not take place, the thickened wall is not required, it thus is shed along with blood and mucus in the form of menstrual flow.
- S15.** Differences between modes of reproduction in unicellular and multicellular organism are given below:

Unicellular organism	Multicellular organism
<ul style="list-style-type: none"> <li>• Simple cell division leads to formation of next progeny.</li> <li>• Various types are binary and multiple fission.</li> <li>• Sexual reproduction not seen normally.</li> <li>• No gamete formation e.g., amoeba, Plasmodium.</li> </ul>	<ul style="list-style-type: none"> <li>• Simple cell division may or may not result in progeny formation.</li> <li>• Various types are budding fragmentation and regeneration as asexual means.</li> <li>• Sexual reproduction in more complex organisms.</li> <li>• Sexual reproduction involves formation of gamete. e.g., Planaria, Mango tree, Man.</li> </ul>

- S16.** Changes in girls during puberty are:  
 (a) Voice becomes shrill. (b) Deposition of fat in breasts and hips.  
 (c) Beginning of menstruation. (d) Growth of pubic hair.

Girls achieve puberty at the age of 12-13 years.

**S17.**



**S18.** Different methods of contraception are:

- (a) **Barrier method:** Where physical barriers like condoms (worn over penis), diaphragm (used by females), cervical cap and copper-T (an IUCD) are used.
- (b) **Chemical method:** Spermicidal applications by women, vaginal pills or oral contraceptive pills (OCPs) are used. PCPs are hormonal preparations which alter the hormonal level in female body.
- (c) **Surgical method:** Portion of vas deferens in male (vasectomy) or portion of fallopian tube in females (tubectomy) is cut or blocked. This stops release of gametes, preventing fertilisation.

**S19.** Contraceptive methods should be adopted as:

- (a) They help in spacing two children.
- (b) Thus helps in maintaining a woman's health.
- (c) Also prevention of sexually transmitted diseases on using condoms.

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