

## SOLVED QUESTION ANSWERS

### 1. What is the effect of DNA copying which is not perfectly accurate on the reproduction process?

Ans. During the process of DNA copying, some mutations are produced which give rise to useful, harmful or neutral variations in the offspring.

### 2. Why do testes lie outside the abdominal cavity?

Ans. Testes are present inside a fibrous covering called scrotum or scrotal sac. The scrotum helps in maintaining 1–3 degree centigrade lower temperature than the body temperature. This is necessary for the development of sperms.

### 3. The organisms formed by asexual reproduction are considered as clones. Why?

Ans: this is because in asexual reproduction, the young ones formed are genetically identical to the parents.

### 1. Give and advantage of vegetative propagation.

Ans: Propagation of plants which have lost the capacity to produce seed plants raised by this method can bear fruits earlier produce genetically similar plants

### 4. Variation is useful for the survival of species over time. But the variants have unequal chances of survival. Explain this statements

Ans: If organisms are suited to a particular niche, drastic changes in the niche could wipe out that population

=> if some variations are there, few individuals might survive

=> depending on whether the variations are useful to the change in the environment some variants survive whereas others do not

### 5. Explain happens when:

(a) testosterone is released in males

(b) pollen grain falls on the stigma of the flower.

(c) egg fuses with sperm cell.

(d) planaria is cut into many pieces.

(e) buds are formed on the notches of the bryophyllum leaf.

Ans: (a) secondary sexual characters

(b) pollen tube formed for fertilization

(c) fertilization

(d) each part grows into a new organism

(e) fall on the soil and forms new plants

### 6. Some flowers contain either stamens or carpel's whereas some flowers contain both categorise the two types of flowers and give one example of each.

Ans: either stamens/carpels – unisexual, e.g. – papaya/watermelon  
both – bisexual, e.g. – hibiscus/mustard

## 5. Compare the processes of binary fission and multiple fission using diagrams.

Ans: Binary fission-division into two equal halves

Multiple fission – division into many daughter cells

## 6. Differentiate between the following :

- |  |   |
|--|---|
| (a) pollen tube and style                      | (b) fission in amoeba and plasmodium    |
| (c) fragmentation and regeneration             | (d) bud of hydra and bud of bryophyllum |
| (e) vegetative propagation and spore formation |   |

Ans: (a) pollen tube – carries male germs cell

style – carries pollen tube

(b) fission in amoeba – binary fission

plasmodium – multiple fission

(c) fragmentation – simple multicellular organisms

regeneration – complex multicellular organisms

(d) budding -vegetative propagation

(e) vegetative propagation – formation of new plants from leaves, root and stem

spore formation – reproduction by spores

## 10. Draw the diagrams to explain the process of regeneration in planaria. Name any other organism in which a similar process occur.

Ans: Regeneration in planaria — planaria have the ability to give rise to new individuals from their body parts. This process is called regeneration. If the body of planaria is somehow cut or broken up into many pieces, each piece grows into a complete organism other organism in which a similar process occur are: hydra, lizard etc

## 11. List any four method of contraception used by humans? How does their use have direct effect on the health and prosperity of a family?

Ans: Following are the four method of contraception used by humans :-

barriers: here a mechanical barrier is created so that the sperms cannot penetrate the egg. It include condoms, diaphragms, cervical caps and vaults.

Intra uterine devices (iuds) : they release hormones to cause phagocytosis of sperms, or they release copper ions to decrease sperm motility.

Oral contraceptive pills: they contain hormones—either progesterone or progesterone- oestrogen combination, which causes hormonal imbalance of the body.

Surgical methods : include vasectomy (removal of a part of the vas deferens) in males and tubectomy (removal of a part of the fallopian tubes) in females.

Use of these contraceptive devices helps in preventing unwanted pregnancies. They can prevent the chances of frequent pregnancies which otherwise affect the health of a mother. They help in family planning by controlling the number of children in a family. So, that proper care is provided to the children and that also reduces the chances of poverty.

Use of contraceptive devices also reduces the chances of getting sexually transmitted diseases such as AIDS. In this way, the birth control methods play important roles in the health and prosperity of the family.

## 12. Answer these questions

(a) give one examples of each unisexual and bisexual flower

(b) mention the changes a flower under goes after fertilization

(c) how does the amount of dna remain constant though each new generation is combination of DNA copes of two individuals?

Ans: (a) The flowers in which either the male or the female reproductive organs are present only, are called unisexual flowers. They are called incomplete flowers. They undergo cross-pollination in order to reproduce.

Example - papaya, watermelon, corn, etc.

The flowers in which both the male and female reproductive organs are present, are known as complete or bisexual flowers. They are capable of self-pollination.

Example - mustard, rose, lily, hibiscus, etc.

(b) After fertilization the petals, stamen and carpel fall off and only sepal, ovary and ovule remain. This is because after fertilization the ovary develops into fruit and protect the seeds, these seeds are actually fertilized ovule. But, carpels and petals do not have any role after fertilization so they fall off. After fertilization, the outer layers of the ovule become impervious, hard and function as a seed coat. An ovule with an embryo inside is called a seed.

(c) In sexual reproduction the gametes usually contain half number of chromosomes compared to the chromosome gametes and some numbers present in the body cells. These haploid gametes when

fuse produce a new cell with double number of chromosomes than the gametes and same as the body cells. In this way organisms restrict doubling of dna and maintain the chromosome number.

### 13. Answer these questions

(a) name the reproductive part of humane female reproductive system:

(i) that produce egg

(ii) where fussion of egg and sperm takes place

(iii) where zygot get implanted

(b) describe what happen to the zygote after it get implanted

Ans: (a) (i) ovaries (ii) oviduct[fallopian tube] (iii) in the lining of the uterus

(b) the fertilized egg, the zygote, gets implanted in the lining of the uterus, and starts dividing . The lining thickens and is richly supplied with blood to nourish the growing embryo

### 14. Name the information sources making protein in the cell? What is the basic event in reproduction?

Ans: The information source for making proteins in the cells: gene specific for that protein.

Basic event of reproduction: replication of DNA

### 15. (a) Write the name of those parts of a flower which serve the same functional as the following do in the animals:

(i) testis (ii) sperm (iii) ovary (iv) egg (b) state the function of flower in the flowering plants

Ans: (a) (i) Testis : anther

in animals, testis is the male reproductive organ that produces sperms. Similarly, in plants, anther is the male reproductive part that produces pollen grains.

(ii) Sperm : pollen grains

sperm is a male gamete in animals. In plants, pollens are male gametes. The generative cell of pollen divides to produce two nuclei called male gametes.

(iii) Ovary : ovary

in animals, ovary is the female reproductive organ that produces eggs. Similarly, in plants, ovary is the female reproductive organ that contains ovules.

(iv) Egg : ova/ovum

eggs in animals are also called ova. In plants, eggs are present inside the female gametophyte, i.e., ovule.

(b)  
The  
func  
tion  
of

flowers in flowering plants is to assist in sexual reproduction. Flower is the most important part in angiosperms because the reproductive parts are located inside it.

**16. What is the main difference between sperms and eggs of humans? Write the importance of this difference.**

Ans : Difference between sperms and eggs of humans:

The major genetic differences lies in the difference in sex chromosome of sperm (male gamete) and egg( female gamete). Sperm has y chromosome as sex chromosome, while egg has x chromosome as sex chromosome. There is a marked difference in size, shape, metabolic activity, cytoplasm content, motility, etc in the sperms and eggs.

Human eggs are much larger than sperms and are highly metabolically active cells. They contain more amount of cytoplasm.

Importance of the difference:

The difference in the sperm and egg cells maintains the continuity of the species generation after generation by the process of reproduction.

**17. How is the process of regeneration in planaria different from reproduction?**

Ans: Different from asexual reproduction:

The reproduction in planaria is different from the asexual reproduction because in the asexual reproduction, a complete individual is formed while in planaria the body parts are regenerated.

Different from sexual reproduction:

It is entirely different from the sexual reproduction because in sexual reproduction male and female gamete fuses and zygote is formed.

**18. What is placenta? State its function in human female.**

Ans: Placenta is a special umbilical cord develops in the fourth week which establishes an intimate connection between the foetal membrane and he uterine wall.

Function of placenta:

the exchange of materials between the mother's blood and the blood of foetus takes place through placenta. It serves as a nutritive, respiratory and excretory organ of the foetus.

**19. Name the part where**

**(i) Eggs develop. (ii) Fertilisation take place. (iii) Fertilised egg gets implanted.**

**(b) Describe, in brief, the changes the uterus undergoes.**

**(i) To receive the zygote. (ii) If zygote is not formed.**

Ans:

(a) (i) the development of egg occurs in the ovary.

(ii) fertilisation takes place in the fallopian tubes.

(iii) the fertilised egg gets implanted in the uterus.

(b) (i) the uterus prepares itself every month to receive a fertilised egg/zygote. The inner uterus lining (endometrium) becomes thick and is supplied with blood to nourish the embryo.

(ii) if the egg is not fertilised, then the uterus lining is not required. Hence, it breaks down and gets released in the form of blood and mucous through the vagina. This process lasts for 2–8 days. This cycle occurs every month and is known as menstruation.

**20. (a) What is pollination? State its significance.**

**(b) How does fertilisation occur in flowers? Name the parts of the flower that develop into**

**(i) seed, and (ii) fruit after fertilisation.**

Ans:

(a) The transfer of pollen grains from the anther to the stigma of a flower is known as pollination. It is of two types:

(i) Self-pollination

It is the transfer of pollen grains from the anther to the stigma of the same flower or another flower on the same plant.

(ii) Cross-pollination

It is the transfer of pollen grains from the anther to the stigma of the flower present on two different plants.

Significance of pollination:

(i) it is a significant event because it precedes fertilisation.

(ii) it brings the male and female gametes closer for the process of fertilisation.

(iii) cross-pollination introduces variations in plants because of the mixing of different genes.

These variations further increase the adaptability of plants towards the environment or surroundings.

(b) Double fertilization is a characteristic feature of flowering plants. In this process, out of the two sperm nuclei, one sperm nucleus fuses with the egg nucleus to form an embryo (process is called syngamy) and another fuses with the polar nucleus to form an endosperm (process is called triple fusion). Because two kinds of fusion—syngamy and triple fusion—take place, the process is known as double fertilization.

After fertilization,

- (i) the ovule develops into a seed
- (ii) the ovary develops into a fruit

**21. (a) Name 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**

**(b) Differentiate between pollination and fertilization.**

Ans: (a) (i) Part that produces pollen grain: anther                      (ii) part that transfers male gamete to the female gamete: style

(iii) sticky part to trap pollen grain: stigma                      (iv) part that develops into fruit: ovary

**(b) Pollination**

1. Pollination is the process of transfer of pollen grains from anther to the stigma of the same or different flower.

2. It takes place with the help of pollinators like wind, water insects etc.

**Fertilization**

1. Fertilization is the process of fusion of male gamete with the female gamete.

2. It takes place by the growth of pollen tube towards the ovary.

**22.(a) Explain the role of placenta in the development of human embryo.**

**(b) Give example of two bacterial and two viral sexually transmitted diseases. Name the most effective contraceptive which prevents spread of such disease.**

Ans: (a) Placenta is a temporary organ which is formed from the tissues derived from the foetus and the mother. The placenta contains villi on the embryo's side of tissue and blood spaces on the mother side of tissue. The blood space surrounds the villi. The villi provides a large surface area for glucose and oxygen to pass from the mother to the embryo. Thus, through placenta, the maternal blood passes food (glucose, amino acids, lipids and proteins), oxygen, hormones, water, antibodies to the foetal blood and the foetal metabolic wastes (carbon dioxide, urea) pass into the maternal blood.

(b) Bacterial infection – which includes gonorrhoea (inflammation of mucus membrane of urinogenital tract) and syphilis (lesions in the mucus membrane of urinogenital tract).

Viral infection – which includes warts, hiv-aids, hepatitis-b.

Use of condoms can prevent the spread of these diseases to a great extent

### **23. What is the role of the seminal vesicles and the prostate gland?**

Ans: Seminal vesicle: its secretion form a major part of the semen (60%). Its secretion is alkaline in nature which neutralizes the effect of acid in the female genital tract. It has fructose sugar which provides nutrition and energy to the sperm.

Prostate gland: its secretion form 13-33% of semen. It helps in sperm motility and viability(chances of striking the ovum).

Cowper 's gland: its secretion lubricates the end of male reproductive part during copulation