

Chapter – 3

How do Organism Reproduction system

In Text Questions-Pg-128

Q. 1 What is the importance of DNA copying in reproduction?

Answer: DNA (Dioxyribo Nucleic acid) is the genetic material found in chromosomes which are present in nucleus of a cell.

DNA copying is an essential part of reproduction:

1. It brings about variation in sexual reproduction which leads to evolution over generations.
2. The chromosome in the nucleus of cell contains specific feature from both the parents.
3. It codes for proteins and required body structure of an individual.
4. Error in DNA copying led to evolution of species

Q. 2 Why is variation beneficial to the species but not necessarily for the individual?

Answer: Variation is beneficial to the species but not necessarily for the individual because it lets a species adapt to the changing environment. Variations at individual level will not help in evolving, but would result in ageing, so variation from any source in an individual can be harmful. At species level, these variations make differences in generation which leads to evolution

In Text Questions-Pg-133

Q. 1 How does binary fission differ from multiple-fission?

Answer:

Binary fission	Multiple-fission
Binary fission nucleus divides into to 2 new individuals nuclei	Multiple nucleus divides into many parts and the cytoplasm does not divide after each nuclear division.
It occurs in normal condition	It occurs during unfavourable condition like Encysted sage
Binary fission reproduction occurs in Amoeba.	Multiple fission reproduction occurs in Plasmodium.

Q. 2 How will an organism be benefitted if it reproduces through spores?

Answer: Plants reproduce by Spores. If an organism reproduces through spore, it is advantageous to the organism. This is because Spores survive unfavorable conditions and they remain alive until favorable conditions appear. They survive in unfavorable conditions with the help of their protective hard covering. Under favorable conditions, they spread through water, air or animals and grow to produce new plants.

Q. 3 Can you think of reasons why more complex organisms cannot give rise to new individuals through regeneration?

Answer: In regeneration a particular type of cell can give rise to its own kind of cell only. In complex organisms, different tissues and organs have different structure; regeneration of a different kind of tissue from one kind of cell is not possible in complex organism. Therefore, complex organisms do not give rise to individual through regeneration.

Q. 4 Why is vegetative propagation practiced for growing some types of plants?

Answer: Vegetative propagation is a type of asexual reproduction in plants where the offspring formed is due to one parent. Also, the offspring by vegetative propagation is genetically identical to the parent.

It has the following advantages which makes it suitable for growing some types of plants-

- Characteristics of the plant can be preserved.
- Several plants in a short time can be produced quickly by vegetative propagation.
- With the help of vegetative propagation it is possible to propagate plants that have lost the capability to produce viable seeds.
- Only one parent is needed to produce offspring
- The fruit trees grown by vegetative propagation methods start producing fruits earlier.

Q. 5 Why is DNA copying an essential part of the process of reproduction?

Answer: DNA is the genetic material found in chromosomes which are present in nucleus of a cell. DNA copying is an essential part of reproduction because it transmits characteristics from parents to its offspring and brings about variation in sexual reproduction.

In Text Questions-Pg-140

Q. 1 How is the process of pollination different from fertilization?

Answer:

Pollination	Fertilization
It is the process of transfer of pollens from anther to stigma.	It is the fusion of male gamete in pollen with the female egg in ovule to form a zygote.

Agents that bring about pollination can be air, water, birds or insects.	It occurs inside the ovule.
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Q. 2 What is the role of seminal vesicles and prostate gland?

Answer: Found in male reproductive system, seminal vesicles and prostate gland secrete some secretions that lubricate the sperms and make their transport easier. These secretions are released into the vas deferens.

Their secretions also provide nutrition in form of calcium and some enzymes which nourish the sperm.

Q. 3 What are the changes seen in girls at the time of puberty?

Answer: Changes seen in girls at the time of puberty are-

- Increase in breast size.
- Broadening of hips.
- Appearance of hair under the armpits and in the genital area.
- Beginning of menstrual cycle. (Uterus and ovary enlarge; ovary starts releasing egg)
- Pimples on skin appear due to secretion of oil from the skin.

Q. 4 How does the embryo get nourishment inside the mother's body?

Answer: There are two connections that provide nourishment to the embryo inside the mother's body-

- Villi- these are finger like projections on the outer tissue of the embryo, in the uterus. Villi provide a large surface area for exchange of nutrients and oxygen.

• Placenta- embedded in the uterine wall, provides the embryo with oxygen and nutrients from mother's blood. Placenta also removes the nitrogenous waste materials produced by embryo.

Q. 5 If a woman is using a copper-T, will it help in protecting her from sexually transmitted diseases?

Answer: No; Use of copper-T will not help in protecting a woman from sexually transmitted diseases. Copper-T is an Intrauterine device that only prevents the implantation of embryo in uterus. It will not prevent the entry of sperms and thus will not protect from sexually transmitted diseases.

Exercise-Pg-141

Q. 1 Asexual reproduction takes place through budding in:

- A. Amoeba
- B. Yeast
- C. Plasmodium
- D. Leishmania

Answer: It reproduces asexually by binary fission and budding. New bud arises from the parent body and when it matures, it detaches itself from the parent body and leads solitary life.

Q. 2 Which of the following is not a part of the female reproductive system in human beings?

- A. Ovary
- B. Uterus
- C. Vas deferens
- D. Fallopian tube

Answer: Vas deferens is a part of male reproductive system.

Q. 3 The anther contains:

- A. Sepals
- B. Ovules
- C. Carpel
- D. Pollen grains

Answer: Anther is part of the stamen where pollen is produced.

Q. 4 What are the advantages of sexual reproduction over asexual reproduction?

Answer: • Sexual reproduction results in new genetic variations which promotes diversity of characters which is not possible in case of asexual reproduction.

- Sexual reproduction plays an important role in the origin of new species having different characteristic which is again not possible in case of asexual reproduction.
- It introduces variability, which leads to continual evolution of various species to form better organisms. Evolution is not possible in case of asexual reproduction.

Q. 5 What are the functions performed by testes in human beings?

Answer: Testes perform 2 functions in human beings, basically males (testes are a part of male reproductive system; located outside the abdominal cavity in scrotum)-

- They produce male gametes/ sex cells known as sperms.
- Also, they produce male sex hormone testosterone which is responsible for appearance of secondary sexual characters in boys, for example- beard, moustache, deep voice, etc.

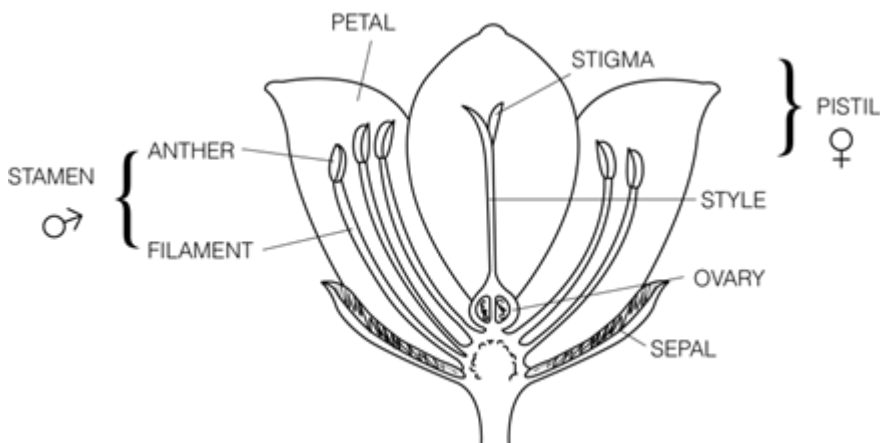
Q. 6 Why does menstruation occur?

Answer: Menstruation is a process of regular discharge of blood and mucosal tissues that occurs monthly in females.

It occurs because the ovary produces one egg every month, so simultaneously the walls of the uterus thicken, get supplied by blood and the uterus is prepared to receive and nourish the egg if fertilized by the sperm. However, if the egg does not get fertilized by the sperm then this inner wall of the uterus which thickened earlier to receive the fertilized egg, breaks down gradually and is released externally from the vagina in form of blood and mucosal tissues.

Q. 7 Draw a labelled diagram of the longitudinal section of a flower.

Answer: Labelled diagram of longitudinal section of a flower.



Q. 8 What are the different methods of contraception?

Answer: Contraception is use of methods/devices to control pregnancy in women.

There are various methods to avoid pregnancy-

1). Barrier methods- Use of condoms, diaphragm, and cervical caps. Condom is used by men to prevent the transfer of sperms from penis to uterus, thus preventing fertilization of egg. Diaphragm is used by females to cover the cervix. Cervical caps are also used by females for the same purpose.

2). Surgical methods- Vasectomy and Tubectomy. Vasectomy is done in males where a part of vas deference is removed which prevents the sperms from coming out.

Tubectomy is done in females where a part of fallopian tube is removed and the ends are ligated. This prevents the transfer of eggs into the oviduct.

3). Oral Contraceptive pills- They contain hormones like progesterone or progesterone and estrogen combination which prevent the ovaries from releasing egg.

4). Intra Uterine Devices- these devices release copper ions to decrease sperm motility. Loop and copper-T are 2 such devices.

Q. 9 How are the modes of reproduction different in unicellular and multicellular organisms?

Answer: Unicellular organisms are the single-celled organism. These organisms reproduce by asexual mode of reproduction i.e by the process of binary fission, multiple fission, budding, or cyst formation. In this case of reproduction nucleus get divided into two equal parts.

Multicellular organisms are a complex organism which has function specific organs like plants, mammals etc. Complex multicellular organisms reproduce sexually that involves fusion of gamete/ sex cells from parents. e.g. pollination in plant.

Q. 10 How does reproduction help in providing stability to populations of species?

Answer: Every species has to constantly struggle for its survival. Natural predators keep on removing a large section of the population of a particular species. Also, the natural cycle of life and death also removes a section of the population. Reproduction is giving birth to individuals of same species, hence it way to prevent the members of

population from being lost. Thus, it provides stability to population of species.

Q. 11 What could be the reasons for adopting contraceptive method?

Answer: The reasons for adopting contraceptive methods maybe -

- To avoid unwanted pregnancies
- To prevent transfer of STD (Sexually Transmitted Diseases)
- To control the number of children the couple wants to have i.e. family planning.
- Contraceptive methods are often used to maintain a gap of few years between 2 consecutive children.