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Q.1.(a) How do organisms reproduced by fission?

(b) Write names of any two organisms which reproduce by this method.

(c) Differentiate between the fission of Leishmania and Plasmodium. [CBSE 2013,17]

Ans.(a) Cell division takes place which leads to creation of new individuals.

(b) Bacteria, Protozoa.

(c) Leishmania-Binary fission occurs in a definite orientation.

Plasmodium- undergoes multiple fission.

Q.2. Explain the process of regeneration in Planaria. How is this process different from reproduction? [CBSE 2014]

Ans. Planaria gets cut into many pieces, each piece grows into separate individual, specialized cells proliferate. Mass of cells gets differentiated into various cells and tissues.

Regeneration is not the same as reproduction as most of the organisms would not normally depend on being cut up to be able to reproduce. (It is normally for repair of the damaged part)

Q.3. 'Regeneration is not reproduction'. Justify this statement with reason. [CBSE 2013,14]

Ans. When a piece is cut from an organism, it grows into complete organism. Regeneration is carried out by specialized cells. It is not reproduction since most organisms would not be able to grow through pieces.

Q.4. What is meant by DNA copying? Mention its importance in reproduction. [CBSE 2012,13]

Ans. Cells use chemical reactions to build copies of their DNA. This creates two copies of the DNA in a reproducing cell. DNA copying is accompanied by the creation of an additional cellular apparatus to facilitate the DNA copies to separate with its own cellular apparatus.

DNA copying gives rise to some inbuilt tendency for variation during reproduction which is the basis for evolution.

Q.5.How does reproduction help in providing stability to populations of species? [CBSE 2011]

Ans. Population of organisms fill well defined places or niches in the ecosystem using their ability to produce. The rate of birth must be at par with the rate of death to provide stability to population of a species. And it is possible only by reproduction. Further, the consistency of DNA copying during reproduction is important for the maintenance of body design features that allow the organism to use that particular niche. Reproduction is therefore linked to the stability of population of species.

Q.6. (a) List two reasons for the appearance of variations among the progeny formed by sexual reproduction.

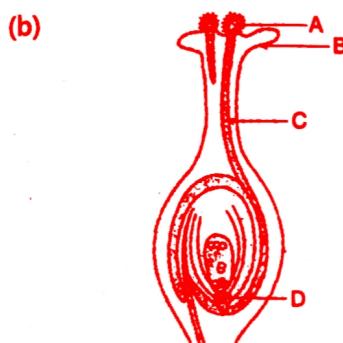
(b) ---> (Diagram in next page)

(i) Name the part marked 'A' in the diagram.

(ii) How does 'A' reaches part 'B'?

(iii) State the importance of the part'C'.

(iv) What happens to the part marked 'D' after fertilization is over? [CBSE 2016]



Ans.(a) Variation is seen among progeny formed by sexual reproduction because of

- (i) involvement of two individuals. different
- (ii) creation of new combination of variants.

(b) (i) A pollen or pollen grain.

- (ii) It reaches the stigma (B) by agents of pollination.
- (iii) Part C (pollen tube) helps male gamete to reach egg (ovule).
- (iv) After fertilization it converts into embryo.

Q.7.(a) Give the functions of the following

(i) Stigma (ii) Ovary (iii) Pollen Tube (b) State in brief the formation of seed in a flower.

Ans. (a)(i) The sticky terminal part of the carpel is called stigma. It receives pollen.
(ii) The swollen bottom part of the carpel is called ovary. It contains female germ cells which form seed after fertilization.
(iii) Transfer of male gamete.

(b) After fertilization, the zygote divides several times to form an embryo within the ovule. The ovule develops a tough coat and is gradually converted into a seed.

Q.8. Define the term 'double fertilization in plants'. After fertilization name the part in each case which develops into (i) the fruit, (ii) the seeds. [CBSE 2011]

Ans. Double fertilization It occurs when one male nucleus fertilizes (fuses) with egg cell to form zygote cell and other male nucleus fuses (fertilizes) with two polar nuclei to cause triple fusion. As these two types of fertilizations take place at the same time in the ovule of the plant, it is known as double fertilization.

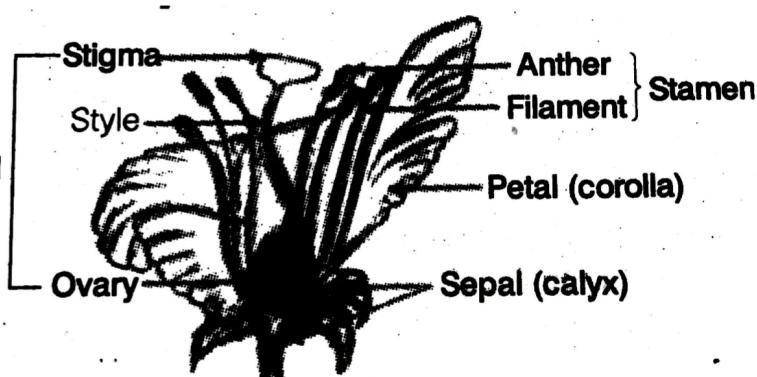
After fertilisation:

- (i) ovary develops into fruit.
- (ii) ovules develop into seeds.

Q.9. Draw a labelled diagram of the longitudinal section of a flower.

[CBSE 2010,11,12,13,15]

Ans.



Q.10.(a) Differentiate between pollination and Fertilization.

(b) What do fossils tell us about the process of evolution?

Ans.(a) Pollination Transfer of pollen from the stamen to the pistil of the flower.

Fertilization Fusion of male and female gametes.

(b) Help in establishing links and act as evidence of evolution.

Q.11.Why are the testes located outside the abdominal cavity? Mention the endocrine and exocrine function of testes. [CBSE 2016]

Ans. Sperm formation requires lower a temperature than the normal body temperature. This temperature is 1-3°C lower than the temperature of the body. Testes are thus located outside so that scrotum provides an optimal temperature for the formation of the sperms.

Endocrine function Production of male hormone (Testosterone).

Exocrine function Production of male gametes (Sperms).

Q.12.(a) Trace the path of sperms from where they are produced in human body to the exterior. [CBSE 2016]

(b) Write the functions of secretions of prostate gland and seminal vesicles in humans.

Ans. (a) The formation of sperms takes place in testes and delivered through the vas deferens which unites with a tube coming from urinary bladder to form urethra from where they are excreted out of the body.

(b) Prostate gland and seminal vesicles add their secretions so that the sperms are now in a fluid which makes their transport easier and provides nutrition.

Q.13. Distinguish between the functions of ovary and testis. [CBSE 2013,14]

Ans.

	Ovary	Testis
1.	Ovary is the primary sex organ in females which produces eggs.	Testis is the primary sex organ in males which produces sperms.
2.	It also secretes hormone such as estrogen (which imparts female secondary sexual characters) and progesterone (which maintains pregnancy).	It also secretes hormone testosterone which imparts male secondary sexual characters.
3.	Ovary remains functional upto 50 years of age.	Testis remains functional even more than 70 years of age.

Q.14. Why does menstruation occur?

[CBSE 2010,11]

Ans. If the egg is not fertilized, then it is lost after one day. The uterus prepares itself to receive a fertilized egg. The lining of uterus becomes thick and spongy. These lining slowly breaks and comes out through vagina as blood and mucus. This process is called menstruation. So, it takes place when no fertilization of egg takes place.

Q.15. State the changes that take place in the uterus subsequent to implantation of young embryo. How does this embryo get nourishment inside the mother's body? [CBSE 2011,12,13]

Ans (i) The uterine wall thickens that is richly supplied with blood.
(ii) A special tissue called placenta develops which connects embryo to the uterine wall that provides nutrients and oxygen to it.
(iii) Placenta is a disc which is embedded in the uterine wall. It contains villi on the embryo's side of the tissue. On the mother's side 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.



Q.1 What is vegetative propagation? List with brief explanation three advantages of practising this process for growing some types of plants. Select two plants from the following which are grown by this process: Banana, Wheat, Mustard, Jasmine, Gram.

[CBSE (F)2016]

Ans. Vegetative propagation is the development of a new plant from the vegetative parts like roots, stem and leaves of a plant.

Advantages

- (i) Such plants can bear flowers and fruits earlier than those produced from seeds.
- (ii) Allows propagation of plants (banana, orange, etc.) that have lost capacity to produce seeds.
- (iii) All plants produced are genetically similar to the parent plant and hence have all its characters. Jasmine and banana are grown by vegetative propagation.

Q.2.(a) Identify the organisms A, B and the mode of asexual reproduction exhibited by them.



- (b) How will an organism be benefitted if it reproduces through spores?
- (c) Mention the two asexual methods by which hydra can reproduce. Explain briefly any one such method.

[CBSE 2013]

Ans. (a) (A) Bryophyllum- vegetative propagation.
(B) Plasmodium - multiple fission.

(b) Spores are covered with thick walls that protect them until they come into contact with a moist surface.

(c) Budding and Regeneration.

Budding A bud develops as an outgrowth due to repeated cell division at a specific site, these buds develop into tiny individuals, mature and detach from the parent to become new individuals.

Regeneration Specialized cells divide to form large number of cells undergo changes to become various cell types and tissues.

Q.3. What is meant by speciation? List four factors that could lead to speciation. Which of these cannot be a major factor in the speciation of a self-pollinating plant species. Give reason to justify your answer.

[CBSE 2016]

Ans. Speciation is the process of formation of a new species from a pre-existing one.

Factors which lead to speciation

- (i) Genetic drift
- (ii) Mutation
- (iii) Natural selection
- (iv) Geographical isolation

Geographical isolation cannot be a major factor in the speciation of a self-pollinating plant species. This is because physical barrier cannot be created in self-pollinating plants.

Q.4. Write one main difference between asexual and sexual mode of reproduction. Which species is likely to have comparatively better chances of survival-the one reproducing asexually or the one reproducing sexually? Give reason to justify your answer. [CBSE 2018]

Ans. Asexual reproduction involves single individual which produces new generation whereas sexual reproduction involves two individuals one is male parent and other is female parent to produce new individuals. Sexually reproducing species is likely to have comparatively better chance of survival as it involves two different individuals. Sexual mode of reproduction incorporates such a process of combining DNA from two different gametes of two different parents i.e., male and female gametes of male and female parents respectively. Thus sexual reproduction involves variation in the new individuals which helps in survival of the species.

Q.5. (a) Write the functions of the following parts in human female reproductive system

(i) Ovary (ii) Oviduct (iii) Uterus

(b) Describe the structure and function of placenta.

[CBSE 2016,17,18]

Ans. (a)

(i)	Ovary	(i)	Production of female hormone
(ii)	Oviduct	(ii)	Production of female gamete
		(i)	Transfer of female gamete from the ovary
		(ii)	Site of fertilization
(iii)	Uterus	(i)	Implantation of the zygote
		(ii)	Nourishment of the developing embryo/placenta formation

(b) Structure of Placenta It is a disc like structure embedded in the uterine wall connected to the embryo. It has villi on the embryo's side of the tissue and on the mother side, it has blood spaces, which surround the villi.

Function of Placenta It provides a large surface area for nutrients/glucose and oxygen to pass from the mother's side to the embryo and waste substances from the embryo's side to mother's blood.

Q.6. Write the two causes of human population explosion. Explain with the help of suitable examples how this explosion can be checked.

[CBSE 2013]

Ans. (a) The declining death rates due to improved medical facilities.

(b) Desire for a male child.

(c) Less awareness about birth control methods.

(d) Illiteracy/poverty (any two)

Population explosion can be checked

(i) By using contraceptive methods to avoid pregnancy.

(a) Contraceptive methods are used such as (i) mechanical barriers (ii) drugs (as pills) (iii) loop or copper-T and (iv) surgical method.

(b) Pills change the hormonal balance and thus prevent the release of egg, hence fertilization is prevented.

(ii) By spreading awareness about the importance of small family. This is because an expanding population makes it harder to improve everybody's standard of living.

Q.7.(a) Draw a sectional view of human female reproductive system and label the part where (i) eggs develop.

(ii) fertilization takes place.

(iii) fertilized egg gets implanted.

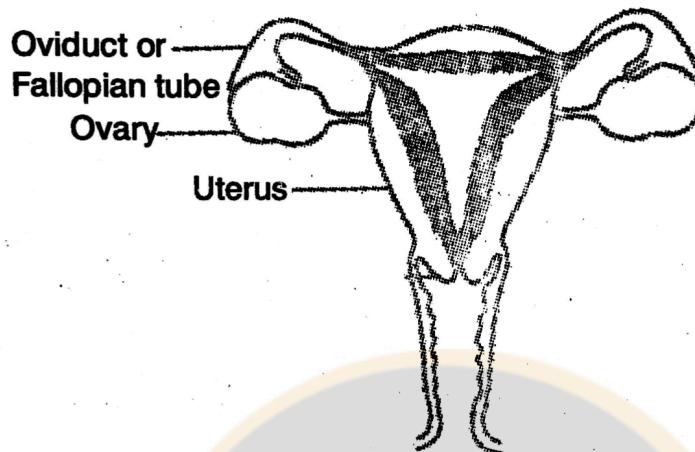
(b) Describe in brief the changes the uterus undergoes

(i) to receive the zygote.

(ii) if zygote is not formed.

[CBSE 2015]

Ans. (a)



Female Reproductive System

Labellings

(i) Ovary (Eggs develop)

(ii) Fallopian Tube/Oviduct (Fertilization takes place)

(iii) Uterus (Fertilized egg gets implanted)

(b) (i) The inner lining of the uterus thickens and is richly supplied with blood.

(ii) The inner lining slowly breaks and comes out through the vagina as blood and mucus (menstruation).

Q.8. (a) Name the human male reproductive organ that produces sperms and also secretes a hormone. Write the functions of the secreted hormone.

(b) Name the parts of the human female reproductive system where

(i) fertilization takes place.

(ii) implantation of the fertilised egg occurs. Explain how the embryo gets nourishment inside the mother's body?

[CBSE 2015]

Ans. (a) Testis secrete male hormone testosterone

Functions

(i) Formation of sperms.

(ii) Development of secondary sexual characters.

(b) (i) Fallopian tube/Oviduct.

(ii) Uterus.

Placenta is a special disc like tissue embedded in the mother's uterine wall and connected to the foetus/embryo.

Placenta provides a large surface area for glucose and oxygen/nutrients to pass from the mother's blood to the embryo/foetus.

Q.9. What are the different methods of contraception?

[CBSE 2011]

Ans. There are three main methods of contraception

1. Barrier methods In barrier methods, physical devices such as condom, diaphragm and cervical caps are used. They prevent the entry of sperms in the female genital tract during copulation.

2. Chemical methods The chemical methods make use of specific drugs by females. There are two types of such drugs, oral pills and vaginal pills. Oral pills are mainly hormonal preparation and are called oral contraceptives (OCs).

3. Surgical methods In the surgical methods, a small portion of vas deferens in male and the fallopian tube in female, is surgically removed or ligated (tied). It is called vasectomy in males and tubectomy in females.

Apart from these three methods, the Intra Uterine Contraceptive Devices are used to prevent pregnancies. The use of Intra Uterine Contraceptive Devices (IUCDs) is also very effective and popular. A copper-T is placed safely inside the uterus by a practising doctor or a skilled nurse. IUCDs prevent implantation in the uterus.

Q.10. (a) What are Sexually Transmitted Diseases (STD)? List two viral and two bacterial STDs.

(b) What is contraception ? List three reasons for adopting contraceptive methods.

Ans. (a) STDs are diseases that spread via sexual contact

[CBSE 2019]

Bacterial STDs : Gonorrhoea- Neisseria gonorrhoea

Syphilis - Treponema pallidum

Viral STDs: Genital herpes - Herpes Simplex virus (HSV)

AIDS HIV -

(b) Contraception is an act to prevent pregnancy or conception (hence contra contrary conception)

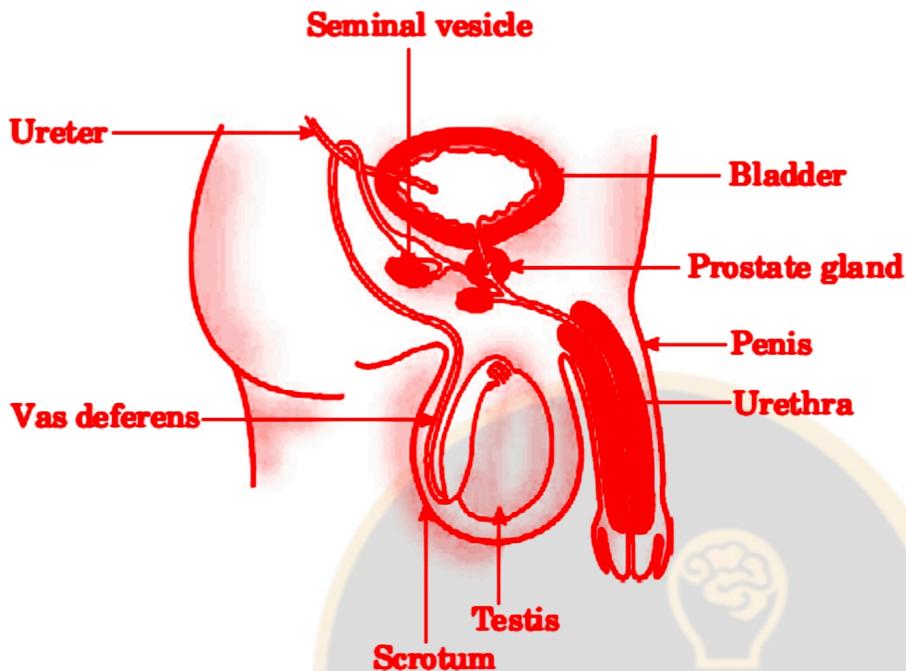
Reasons for contraception :

1. Population explosion : As the world population is largely growing, the individuals are taking into consideration the need for contraception.

2. Decreased risk of STDs : Barrier methods of contraception such as condoms and vaginal caps sub due the sexual contact and hence a diminished risk of STD.

3. Family planning : By the act of contraception, many individuals can place when to start their family thinking about the social and economic impact.

The male reproductive system consists of portions which produce the germ-cells and other portions that deliver the germ-cells to the site of fertilisation. Testes are located outside the abdominal cavity in scrotum because sperm formation requires a lower temperature than normal body temperature. It also has a role of secretion of male sex hormone which brings changes in appearance seen in boys at the time of puberty. Vas deferens unites with a tube coming from urinary bladder. Urethra is a common passage for sperms and urine. Prostate gland and seminal vesicles add their secretions so that sperms are now in fluid.



Human-male reproductive system

- (i) Name the sex hormone associated with males.
- (ii) Testes are located outside the abdominal cavity in scrotum. Why?
- (iii) What is the nature of semen?
- (iv) Which part of the male reproductive system is the common passage for sperm and Urine?

ANSWERS

- (i) Testosterone
- (ii) Testes are located outside the abdominal cavity in scrotum because sperm formation requires a lower temperature than normal body temperature.
- (iii) Slightly basic
- (iv) Urethra