Important Questions of How Do Organisms Reproduce Class 10 Science Chapter 8

Question 1.
Newly formed DNA copies may not be identical at times. Give one reason. (AI2017)
Answer:
When a cell reproduces, DNA replication occurs which results in formation of two similar copies of DNA. The process of copying the DNA leads to some variations each time. As a result, the DNA copies produced are similar to each other but sometimes may not identical.

Question 2.
When a cell reproduces, what happens to its DNA? (AI 2017)
Answer:
When a cell reproduces, DNA replication occurs which forms two similar copies of DNA..

Question 3.
What is DNA? (Delhi 2016, Foreign 2015)
Answer:
DNA (deoxyribonucleic acid) is a polymer made up of large number of nucleotide units. It carries genetic information from generation to generation.

Question 4.
Name the life process of an organism that helps in the growth of its population. (AI 2015)
Answer:
Reproduction is a life process that helps in multiplication of an organism and growth of its population.

Question 5.
Reproduction is one of the most important characteristic ‘of living beings. Give three reasons in support of the statement. (AI 2017)
Answer:
Reproduction is one of the most important characteristics of living beings because :

- it is essential for existence and continuity of a species.

- it helps to pass genetic information to next generation.
- it brings variations in next generation which is the basis for evolution.

Question 6.
Define reproduction. How does it helps in providing stability to the population of species? (AI 2016)
Answer:
The production of new organisms by the existing organisms of the same species is known as reproduction. It is linked to the stability of population of a species. DNA replication during reproduction ensures transfer of specific characters or body design features that is essential for an individual of a population to live and use that particular niche. Some variations present in a few individuals of population caused due to reproduction which also helps in their survival at changing niches.

Question 7.
What is DNA copying? State its importance. (Delhi 2015)
Answer:
DNA copying is the production of similar copies of DNA present in a cell using various chemical reactions. DNA copying is essential for reproduction through which the organisms pass on their body features to their offspring. Moreover, minor alternations during the process of DNA copying result in the production of variations. Such variations are useful for the survival of species over time.

Question 8.
What is the effect of DNA copying, which is not perfectly accurate, on the reproduction process? How does the amount of DNA remain constant through each new generation is a combination of DNA copies of two individuals? (AI 2014)
Answer:
In the process of reproduction, if DNA copying is not perfectly accurate, variation occurs. These in turn may allow few individuals of a population to survive in an altered niche and becomes the basis of evolution and over time. Such variations are useful for the survival of species.
The combination of DNA copies of two individuals, (male and female) occurs during sexual reproduction. Reduction division (meiosis) during gamete formation halves the chromosome number in both male and female gametes. Since these two gametes fuse during fertilisation, the original number of chromosomes (as in the parent) is restored in the offspring. By this way the amount of DNA remains constant in each new generation.

Question 9.
Name the method by which Spirogyra reproduces under favourable conditions. Is this method sexual or asexual? (Delhi 2017)
Answer:
The method by which Spirogyra reproduces under favorable conditions is fragmentation. This is an asexual mode of reproduction.

Question 10.
How does Plasmodium reproduce. Is this method sexual or asexual? (Delhi 2017)
Answer:
Plasmodium reproduces through multiple fission method. In this method, the parent organism splits to form many new organisms at the same time. This is an asexual method of reproduction.

Question 11.
Name the part of Bryophyllum where the buds are produced for vegetative propagation. (Delhi 2016)
Answer:
Bryophyllum propagates vegetatively by the buds produced at the margins of leaves.

Question 12.
What happens when a Planaria gets cut into two pieces? (Delhi 2016)
Answer:
When Planaria is cut into two pieces then each piece grows into a complete organism. This is known as regeneration.

Question 13.
What happens when a mature Spirogyra filament attains considerable length? (AI 2016)
Answer:
When a mature Spirogyra filament attains considerable length it simply breaks into two or more fragments and each fragment then grows into a new Spirogyra.

Question 14.
Name the method by which Hydra reproduces. Is this method sexual or asexual ? (Foreign 2016)
Answer:
Hydra generally reproduces through budding. It is an asexual method of reproduction.

Question 15.
Name two simple organisms having the ability of regeneration. (AI 2015)
Answer:
Hydra and Planaria are two organisms that have the ability to regenerate.

Question 16.
Name the causative agent of the disease “kala- azar” and its mode of asexual reproduction. (Foreign 2015)
Answer:
Causative agent of the disease Kala-azar is Leishmania. It reproduces asexually by binary fission.

Question 17.
Write two differences between binary fission and multiple fission in a tabular form. (Delhi 2015)
Answer:
Differences between binary fission and multiple fission are as follows:

Binary fission	Multiple fission
(i) The parent organism, splits to form two new organisms, e.g., Amoeba, Paramecium.	The parent organism splits to form many new organisms at the same time, e.g., Plasmodium.
(ii) The nucleus of the parent body divides only once to produce two nuclei.	The nucleus of the parent body divides repeatedly to produce many nuclei.

Question 18.
List four modes of asexual reproduction other than fission in the living organisms. (Delhi 2014)
Answer:
The four modes of asexual reproduction other than fission in living organisms are :

- budding
- spore formation
- regeneration and
- fragmentation.

Question 19.
List four advantages of vegetative propagation. (Delhi 2014)

Answer:
The following are the advantages of vegetative propagation:

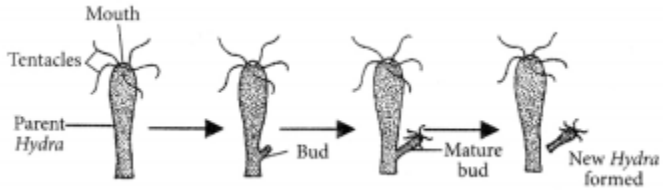
- budding
- spore formation
- regeneration and
- fragmentation.

Question 19.
List four advantages of vegetative propagation. (Delhi 2014)
Answer:
The following are the advantages of vegetative propagation:

Question 20.
List four modes of asexual reproduction. (Delhi 2014)
Answer:
The four modes of asexual reproduction are :

- binary fission
- budding
- regeneration and
- vegetative propagation.

Question 21.
Draw labelled diagrams to illustrate budding in Hydra. (AI 2014)
Answer:
The given diagram illustrates budding in Hydra:



Question 22.
How do Plasmodium and Leishmania reproduce? Write one difference in their mode of reproduction. (Foreign 2014)
Answer:
Plasmodium and Leishmania reproduce by the process of fission which is an asexual mode of reproduction. Plasmodium reproduces by multiple fission. About 1000 daughter cells are produced by the multiple fission of a Plasmodium. Leishmania

reproduces by the process of binary fission. In Leishmania, the splitting of parent cell takes place in a definite plane (longitudinally) with respect to flagellum at its end to produce two daughter cells.

Question 23.
Define multiple fission. Give its one example. (Foreign 2014)
Answer:
Multiple fission is an asexual mode of reproduction in which the parent organism splits to form many new organisms at the same time. Multiple fission occurs in Plasmodium.

Question 24.
List two advantages ofvegetative reproduction practised in case of an orange plant. (Delhi 2012)
Answer:
The two advantages of vegetative propagation practised in case of an orange plant are

- The new plants produced by vegetative propagation will be exactly like the parent plant. Therefore, any desirable features of the parent plant will be replicated in the new plants.
- The orange plants that have lost the capacity to produce seeds, can also be propagated.

Question 25.
Name an organism which reproduces by spore formation. List three conditions favourable for spores to germinate and grow. (AI 2012)
Answer:
Rhizopus reproduce by the method of spore formation.
The three conditions favourable for spores to germinate and grow are moisture, suitable temperature and food (nutrition).

Question 26.
List two advantages of practising vegetative propagation in plants. Select two plants raised by this method from the list given below : Banana, Gram, Pea, Rose, Tomato, Wheat (Foreign 2012)
Answer:
Two advantages of the vegetative propagation of plants are:

- Any desirable features of the parent plant can be replicated in the new plants.

- Flowers and fruits can be grown in a shorter time as compared to the plants grown from seeds. The two plants raised by this method are banana and rose.

Question 27.
Write any two differences between binary fission and multiple fission in a tabular form as observed in cells of organisms. (Delhi 2011)
Answer:
Refer to answer 17.

Question 28.
List any four reasons for vegetative propagation being practised in the growth of some type of plants. (AI2011)
Answer:
Refer to answer 19.

Question 29.
What is vegetative propagation? Write two of its advantages. (Foreign 2011)
Answer:
Vegetative propagation is a method of asexual reproduction in plants in which the parts other than seeds are used as propagules. Also refer to answer 26.

Question 30.
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. (2018)
Answer:
Difference between asexual and sexual mode of reproduction is as follows :
Asexual reproduction:
Gametes are not formed hence fertilisation does not take place.
Sexual reproduction:
Gametes are always formed and fertilisation takes place to form a zygote.

Species reproducing sexually has a better chance of survival as variations occur only during the sexual reproduction. Variations increase the chances of survival of an individual by making them more fit. Selection of variations by environmental factors forms the basis of evolution.

Question 31.
What happens when
(a) accidently, Planaria gets cut into many pieces-
(b) Bryophyllum leaf falls on the wet soil
(c) on maturation sporangia of Rhizopus bursts? (Delhi 2017)
Answer:
(a) When Planaria accidently gets cut into many pieces then its each piece grows into a complete organism. This is known as regeneration.
(b) When the Bryophyllum leaf falls on the wet soil, the buds present in the notches along the leaf margin develop into new plants. This is known as vegetative propagation.
(c) The sporangia of Rhizopus contain cells or spores that can eventually develop into new Rhizopus individuals when it bursts on maturation.

Question 32.
Describe reproduction by spores in Rhizopus. (AI 2017)
Answer:
Fungus Rhizopus reproduces by spore formation. During the growth of Rhizopus, small rounded, bulb-like structures develop at the top of the erect hyphae. Such structures are called sporangia. Inside each sporangium, nucleus divides several times. Each nucleus gets surrounded by a little amount of cytoplasm to become spore. Large number of spores are formed inside each sporangium. After sometime sporangium bursts and spores are released in the air. When these spores land on food or soil, under favourable conditions, they germinate into new individuals.

Question 33.
What is vegetative propagation? State two advantages and two disadvantages of this method. (AI 2017)
Answer:
Vegetative propagation is a type of asexual reproduction in which the plant parts other than seeds are used as a propagule.
Advantages of vegetative propagation :

- Desirable character of the plant can be preserved through generation.
- Seedless plants can be grown through this method.

Disadvantages of vegetative propagation :

- Plants produced by this method posses less vigour and are more prone to diseases.

- Plants produced by this method show no genetic variation.

Question 34.
What is multiple fission? How does it occur in an organism? Explain briefly. Name one organism which exhibits this type of reproduction. (Delhi 2016)
Answer:
Multiple fission refers to the process of asexual reproduction in which many individuals are formed from a single parent. This method of reproduction occurs in unfavourable conditions. The unicellular organism develops a protective covering called cyst, over the cell. The nucleus of the cell divides repeatedly producing many nuclei. Later on, each nucleus is surrounded by small amount of cytoplasm and many daughter cells are produced within the cyst.

When conditions are favourable the cyst breaks and small offspring are liberated. This type of reproduction is seen in some protozoans, e.g., malarial parasite (Plasmodium).

Question 35.
Explain the term “regeneration” as used in relation to reproduction of organisms. Describe briefly how regeneration is carried out in multicellular organisms like Hydra. (AI 2016)
Answer:
The process of formation of entire organism from the body parts of a fully differentiated organism is called regeneration. It occurs by process of growth and development. Simple animal like Hydra shows regeneration. When a small piece of Hydra breaks off it grows into complete new Hydra.
During regeneration, the cells of cut body part of the organism divide rapidly to make a mass of cells. The cells here move to their proper places within the mass where they have to form different types of tissues. In this way complete organism is regenerated.

Question 36.
In the context of reproduction of species state the main difference between fission and fragmentation. Also give one example of each. (AI 2016)
Answer:
The main differences between fission and fragmentation are as follows:

Fission	Fragmentation
(i) Occurs in unicellular organisms.	Occurs in multicellular organisms.

(ii) Body of organism divides by mitotic divisions into two or more daughter cells. E.g., Leishmania.	Body of the organism splits into one or more fragments and each fragment forms a complete organism. E.g., Spirogyra.

Question 37.
What happens when
(a) Planaria gets cut into two pieces
(b) a mature Spirogyra filament attains considerable length
(c) on maturation sporangia burst? (Foreign 2016)
Answer:
(a) When Planaria is cut into two pieces then each piece grows into a complete organism. This is known as regeneration.
(b) When a mature Spirogyra filament attains a considerable length it breaks into small pieces called fragments. These fragments grow into new individuals and this mode of reproduction is called fragmentation.
(c) When a sporangium burst, large number of spores are released in the air. When these spores land on food or soil, under favourable conditions they germinate into new individuals.

Question 38.
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 (Foreign 2016)
Answer:
Vegetative propagation is an asexual method of reproduction in plants. In this method, new plants are obtained from the parts of old plants (like stems, roots and leaves), without the help of any reproductive organs.

Advantages of vegetative propagation are as follows:

- Vegetative propagation is usually used for the propagation of those plants which produce either very few seeds or do not produce viable seeds.
- Seedless plants can be obtained by artificial vegetative propagation.
- Grafting is a propagation method which is very useful for fruit trees and flowering bushes. It enables to combine the most desirable characteristics of two plants.
- Plants like rose, sugarcane, cactus, etc., can be rapidly propagated through stem cuttings as this method produces new plants from just one plant quickly without

waiting for flowers and seeds. Banana and jasmine are generally grown through vegetative propagation method.

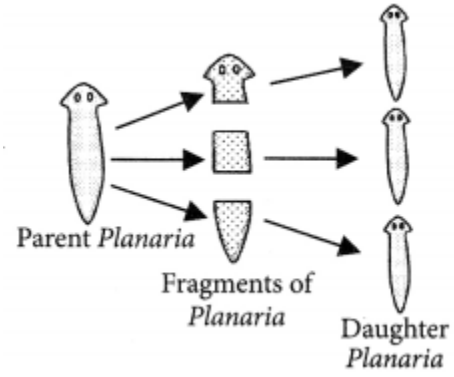
Question 39.
Explain budding in Hydra with the help of labelled diagrams only. (Delhi 2015)
Answer:
Refer to answer 21.

Question 40.
(a) Name the following:
(i) Thread like non-reproductive structures present in Rhizopus.
(ii) 'Blobs' that develop at the tips of the non- reproductive threads in Rhizopus.
(b) Explain how these structures protect themselves and what is the function of the structures released from the 'blobs' in Rhizopus. (Delhi 2015)
Answer:
(a) (i)Threadlike non-reproductivestructures present in Rhizopus are called hyphae.
(ii) 'Blobs' developing at the tip of hyphae are called sporangia which contain spores.
(b) 'Ihe structures called spores (released from 'blobs') are present in sporangia which can develop into new Rhizopus individuals. These spores are covered with thick walls that protect them until they come in contact with another moist surface and can begin to grow.

Question 41.
Explain any three advantages of vegetative propagation. (Foreign 2015)
Answer:
Refer to answer 19.

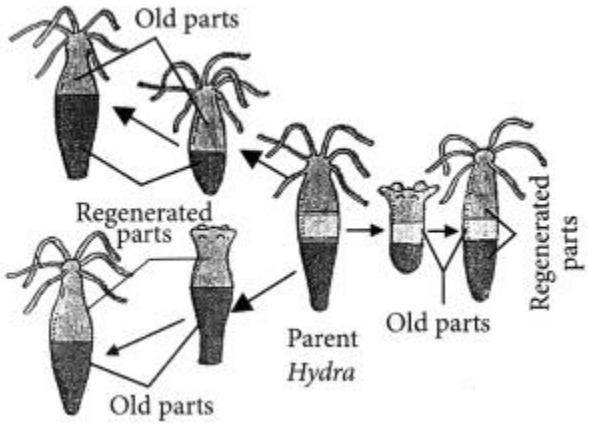
Question 42.
Explain the process of regeneration in Planaria. How is this process different from reproduction? (Foreign 2015, AI 2014)
Answer:
Planaria possesses great power of regeneration. If the body of Planaria somehow gets cut into a number of pieces, then each body piece can regenerate into a complete

Planaria by growing all the missing parts. This is shown in following figure:



During the process of reproduction, new organism is formed from the complete parent organism. However, during fragmentation, a fragment of original parent body grows into new individual.

Question 43.
On cutting the body of an organism into many pieces, it was observed that many of these pieces developed as new individuals. Name the process and list two organisms in which this process may be observed. Draw a schematic diagram to illustrate the changes that are likely to be observed during the development of new individuals in any one of the organisms named. (Delhi 2014)
Answer:
On cutting the body of an organism into many pieces, each of these pieces develop as new individuals. This process is known as regeneration.
Hydra and Planaria are the organism in which this process may be observed. Poliowing is the diagram showing development of new individuals by regeneration of body parts of a parent Hydra:



Question 44.
Draw diagrams to explain the regeneration that takes place in each of the body parts of Planaria when its body is cut into three pieces. Name any other organism in which a similar process can be observed. (Delhi 2014)
Answer:
Refer to answer 42.
Hydra is the organism in which regeneration is observed.

Question 45.
List any two modes of asexual reproduction in animals. Under which mode of reproduction is vegetative propagation placed and why? List two advantages of vegetative propagation. (AI 2014)
Answer:
The two modes of asexual reproduction in animals are : (i) fission and (ii) fragmentation. Vegetative propagation is placed under asexual mode of reproduction because in this mode new plants are obtained from the parts of old plants (like stems, roots and leaves), without the help of any reproductive organs. Also refer to answer 38.

Question 46.
What is vegetative propagation? List its two advantages. Select two plants raised by this method from the list given below:
Wheat, Tomato, Rose, Pea, Gram, Corn, Banana (Foreign 2014)
Answer:
Refer to answers 38 and 26.

Question 47.
(a) Name the mode of reproduction of the following organisms and state the important feature of each mode :
(i) Planaria
(ii) Hydra
(iii) Rhizopus
(b) We can develop new plants from the leaves of Bryophyllum. Comment.
(c) List two advantages of vegetative propagation over other modes of reproduction. (2020)
Answer:
(a) (i) Planaria – Regeneration
Regeneration of organism from its cut body parts occurs by the process of growth and

development.
Regeneration is an asexual mode of reproduction common in lower plants and animals.

(ii) Hydra – Budding
In budding, a small part of the body of the parent organism grows out as a bud which on detaching forms a new organism.
Budding occurs in yeast, some protozoans and certain lower animals.

(iii) Rhizopus – Spores
Spores are usually produced in sporangia.
Spore formation is a common method of an asexual reproduction in bacteria and most of the fungi.

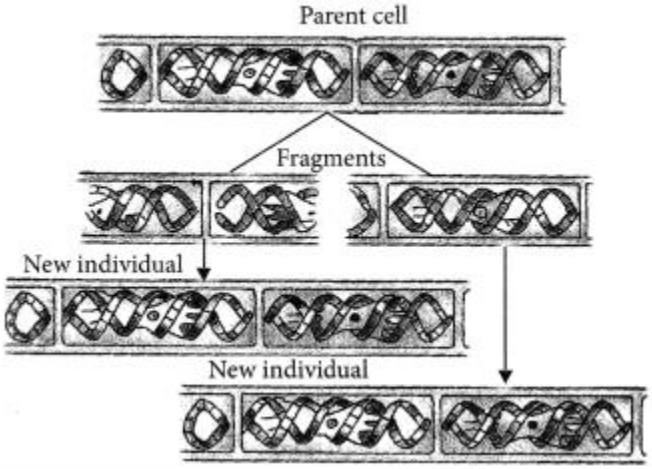
(b) The leaves of a Bryophyllum have special type of buds in their margins. These buds may get detached from the leaves, fall to ground and then grow to produce new Bryophyllum plants. The buds can also drop to the ground together with the leaf and then grow to produce new plants.

(c) Advantages of vegetative propagation are :

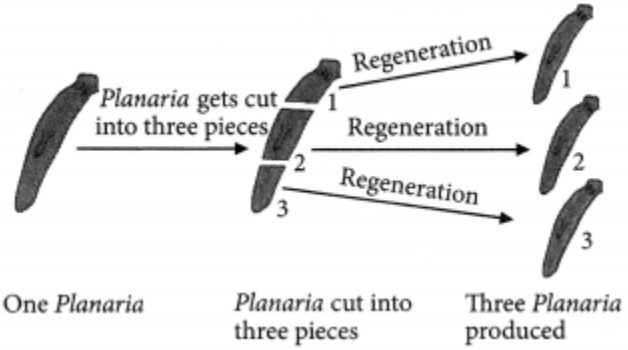
- It is a quick method of propagation.
- The new plants produced by artificial vegetative propagation are exactly like the parent plants.
- Many plants can be grown from one plant by vegetative propagation.

Question 48.
(a) What is fragmentation in organisms? Name a multicellular organism which reproduces by this method.
(b) What is regeneration in organism? Describe regeneration in Planaria with the help of a suitable diagram. (Delhi 2011)
Answer:
(a) Fragmentation is the mode of reproduction in which parent body breaks into two or more fragments and each fragment develops into a new individual. It is a method of reproduction in many filamentous algae, mycelial fungi and thalloid bryophytes, e.g., Spirogyra.

The given figure shows the process of fragmentation in Spirogyra:

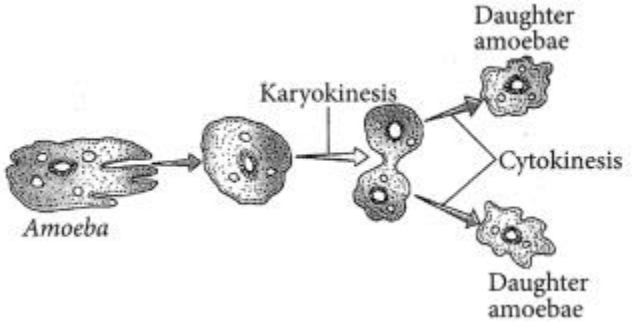


(b) Regeneration may be defined as the ability of an organism to regenerate lost part of the body which have been removed as by injury or autotomy. Many fully differentiated organisms use this ability as a mode of reproduction and give rise to new individual organisms from their body parts. It is common in Hydra, Planaria, etc.
The process of regeneration in Planaria is described in the figure given below:



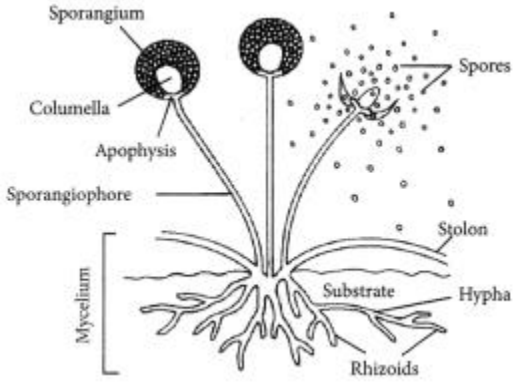
Question 49.
With the help of suitable diagrams, explain the various steps of budding in Hydra. (AI 2011)
Answer:
In multicellular organisms, such as Hydra, a small protuberance arises from one side of the body. The protuberance grows and develops adult like structure. In Hydra, it develops a hypostome and tentacles at its free end. It develops a basal disc at the point of attachment with the parent organism and finally gets detached to lead an independent life. Also refer to answer 21.

Question 50.
What is binary fission in organisms? With the help of suitable diagrams, describe the mode of reproduction in Amoeba. (AI2011)
Answer:
Binary fission is the division of adult parental body into two nearly equal daughter cells. It is the simplest and most common method of asexual reproduction found in protistan protozoans, i.e., Amoeba, Paramecium, etc.
Amoeba reproduces by binary fission by dividing its body into two parts. When the Amoeba cell has reached its maximum size of growth, then first the nucleus of Amoeba lengthens and divides into two parts. After that the cytoplasm of Amoeba divides to form two smaller Amoeba (called daughter amoebae).
Diagrammatic representation of binary fission in Amoeba is as follows :



Question 51.
(a) What is spore formation?
(b) Draw a diagram showing spore formation in Rhizopus.
(c) List two advantages for organisms to reproduce themselves through spores.
(Foreign 2011)
Answer:
(a) Spore formation is the process of formation of microscopic reproductive structures called spores. These spores when detaches from the parent gives rise to a new individual. Reproduction by the formation of spores is a common method of asexual reproduction in some bacteria and most of the fungi.

(b) Following figure shows the process of spore formation in Rhizopus:



(c) Two advantages to spore producing organism are as follows:

- Spores help organism to survive harsh environmental conditions as spores are covered by thick walls which protect them until they come in contact with moist surface and germinate.
- Spores are generally very small and light. Therefore, it ensures easy dispersal by wind, water and animal.

Question 52.
Fertilisation is the process of
(a) transfer of male gamete to female gamete
(b) fusion of nuclei of male and female gamete
(c) adhesion of male and female reproductive organs
(d) the formation of gametes by a reproductive organ. (2020)

The growing size of the human population is a cause of concern for all people. The rate of birth and death in a'given population will determine its size. Reproduction is the process by which organisms increase their population. The process of sexual maturation for reproduction is gradual and takes place while general body growth is still going on. Some degree of sexual maturation does not necessarily mean that the mind or body is ready for sexual acts or for having and bringing up children. Various contraceptive devices are being used by human beings to control the size of population.
Answer:
(b) fusion of nuclei of male and female gamete

Question 53.
List two common signs of sexual maturation in boys and girls.

Answer:
(a) Two common signs of sexual maturation in boys and girls are :

- Growth of pubic hair and extra hair in the armpits.
- Development of oily skin and pimples.

Question 54.
What is the result of reckless female feticide?
Answer:
Female feticide is reducing the number of girls drastically in our country, which is also declining male-female sex ratio.

Question 55.
Which contraceptive method changes the hormonal balance of the body?
Answer:
Chemical contraceptive method changes the hormonal balance of the body.

Question 56.
Write two factors that determine the size of a population. (2020)
Answer:
The rate of birth and death in a given population will determine the size of a population.

Question 57.
What are all organisms called which bear both the sex organs in the same individual? Give one example of such organism. (AI 2016)
Answer:
Organisms which bear both male and female sex organs in the same individual are called bisexual. For example, Hibiscus.

Question 58.
List two functions of ovary of human female reproductive system. (AI 2016)
Answer:
Two functions of ovary of human female are:

- production of female gametes, i.e., ova
- secretion of female hormones, i.e., estrogen and progesterone.

Question 59.
List two unisexual flowers. (Foreign 2016)

Answer:
Flowers of papaya and cucumber are unisexual.

Question 60.
Why is fertilisation not possible without pollination? (Foreign 2016)
Answer:
The process of pollination (in plants) ensures that male gametes bearing structure called pollen comes in contact with the female reproductive structure of the plant. Once the male and female gametes are in close vicinity, they fuse and fertilisation is accomplished. Hence, fertilisation cannot take place without pollination.

Question 61.
Name the parts of a bisexual flower that are not directly involved in reproduction. (Foreign 2015)
Answer:
Calyx and corolla are parts of a flower that are not directly involved in reproduction.

Question 62.
No two individuals are absolutely alike in a population. Why? (Delhi 2014)
Answer:
No two individuals are absolutely alike in a population because sexual reproduction promotes diversity of characters in the offspring by providing genetic variation.

Question 63.
Identify and write the male reproductive parts from the list of different parts of a flower given below:
Stigma, Sepal, Anther, Petal, Ovule, Filament (Delhi 2013C)
Answer:
The male reproductive parts that are present in a flower frorti given list are:
(i) anther and (ii) filament.

Question 64.
What is the main difference between sperms and eggs of humans? Write the importance of this difference. (AI 2014)
Answer:
The main difference between sperms and eggs of humans is that a sperm has X or Y chromosome whereas egg has X chromosome. This helps in determination of the sex of a person and maintaining the genetic continuity in the organisms.

Question 65.
“The chromosomal number of the sexually producing parents and their offspring is the same”. Justify this statement. (AI 2014)
Answer:
In sexual reproduction, two gametes, male and female, combines together to form a new cell ‘zygote’. The reproductive cells or gametes contain only half the amount of DNA as compared to the non-reproductive cells of an organism. So, when a male gamete combines with a female gamete during sexual reproduction, then the new cell ‘zygote’ will have the normal amount of DNA. For example, the human sperm has 23 chromosomes and the human egg has also 23 chromosomes. So when a sperm and an egg fuse together during fertilisation, then the zygote formed will have 23 + 23 = 46 chromosomes, which is the normal number of chromosomes in humans.

Question 66.
List two preparations shown every month by the uterus in anticipation of pregnancy in humans. (Foreign 2014)
Answer:
The two preparations shown every month by the uterus in anticipation of pregnancy in human are:
(i) the wall of uterus becomes thick to receive the fertilised egg and
(ii) the uterine wall is richly supplied with blood to nourish the growing embryo.

Question 67.
State one genetically different feature between sperms and eggs of humans. What is its consequence? (Delhi 2012)
Answer:
A sperm may have X or Y chromosomes whereas egg have X chromosomes. The consequence of this is that sperm decides the sex of the child because eggs contribute only X chromosome while sperms contribute either X or Y chromosomes to the offspring. Therefore, if a child inherits X chromosome from her father, will be a girl and the one that inherit Y chromosome will be a boy.

Question 68.
State the role of placenta in the development of embryo. (AI 2012)
Answer:
Placenta is a physiological connection between an embryo and uterine wall of the mother through which nutrients and other useful substances enter into fetus from

mother’s blood and waste products like urea and carbon dioxide are expelled into mother’s blood from fetus.

Question 69.
List the parts of human male reproductive system which contribute fluid to the semen. State two advantages semen offers to the sperms. (Foreign 2012)
Answer:
The secretion of male accessory reproductive glands, i.e., seminal vesicles, prostate gland and Cowper’s glands contribute fluid to the semen. The two advantages that semen offers to the sperms are:
(i) it provides nutrition to the sperms and
(ii) it also activates the sperms and make their transport easier into the vagina of female during sexual act.

Question 70.
Explain giving one example of each, the unisexual and the bisexual flowers. (Delhi 2011)
Answer:
(i) Unisexual flowers : These flowers contain either stamens (male reproductive part) or carpel (female reproductive part). Example: Papaya, watermelon.
(ii) Bisexual flowers : The flower is said to be bisexual when both male and females parts, i.e., stamens and carpels, are present on the same flower. Example: Hibiscus, mustard.

Question 71.
Describe the role of fallopian tubes in the female reproductive system. (AI2011)
Answer:
Fallopian tubes are a pair of elongated, ciliated, muscular and tubular structures extending from close to ovaries to uterus. It is the site of fertilisation and helps in the conduction of ovum or zygote towards uterus by ciliary action and peristalsis.

Question 72.
Explain the terms:
(i) Implantation of zygote
(ii) Placenta (Foreign 2011)
Answer:
(i) Implantation of zygote refers to the process of attachment of the blastocyst on the inner wall of the uterus, It occurs on 7th day after fertilisation and is controlled by

estrogen and progesterone hormones.
(ii) Refer to answer 68.

Question 73.
Define the term pollination. Differentiate between self-pollination and cross-pollination. What is the significance of pollination? (2020)
Answer:
The process of transfer of pollen grains from anther of a flower to the stigma of the same flower or another flower of the same species is known as pollination. The two inodes of pollination are self pollination and cross pollination.
Differences between self pollination and cross pollination are as follows:

Character	Self pollination	Cross pollination
Occurrence	Occurs within a flower or between two flowers of the same plant.	Occurs between two flowers of two different plants of the same species.
Agent of pollination	Usually no external agent of pollination is required.	External agents such as wind, water, insects and birds are required.
Production of pollen grains	Produced in small numbers, thus no wastage of pollen grains occurs.	Produced in large numbers thus, wastage of pollen grains occurs.
Appearance of flowers	Flowers are generally not attractive.	Flowers are attractive with coloured petals.
Fragrance and nectar	Commonly flowers do not produce scent or nectar.	Flowers generally produces scent and nectar.
Nature of offspring produced	Offspring produced have genetic makeup identical to the parent plant, no variation occurs.	Offspring produced may differ in genetic make-up and variations occur.

Pollination is important because it brings pollen grains to the female reproductive part (carpel) of the plant that leads to fertilisation.

Question 74.
(a) What provides nutrition to human sperms? State the genetic constitution of a sperm.
(b) Mention the chromosome pair present in a zygote which determines the sex of (i) a

female child and (ii) a male child. (2020)
Answer:
(a) The secretions of seminal vesicles and prostate gland provides nutrition to the human sperms and also make their further transport easier. The genetic constitution of a sperm can be 50% have X chromosome and 50% have Y chromosome.

(b) (i) XX – Female child
(ii) XY – Male child

Question 75.
State the basic requirement for sexual reproduction. Write the importance of such reproductions in nature. (Delhi 2017)
Answer:
The basic requirement for sexual reproduction is involvement of both sexes, i.e., male and female, to produce an offspring. It takes place by the combination of gametes which come from two different parents.
The importance of sexual reproduction in nature are :
(i) Fusion of male and female gametes coming from two different and sexually distinct individuals, exhibit diversity of characters in offspring.
(ii) Meiosis during gametogenesis provides opportunities for new combination of genes, which leads to variation required for evolution and plays a prominent role in the origin of new species. Variations lead to the appearance of such characters, which fit to the changing environment, resulting in the survival of the species.

Question 76.
State the changes that take place in the uterus when:
(a) Implantation of embryo has occurred.
(b) Female gamete/egg is not fertilised. (Delhi 2017)
Answer:
(a) Implantation is the close attachment of the blastocyst (young multicellular embryo) to the uterine wall. It is fullowed by a number of developmental changes in the thickened wall of uterus. An intimate connection between the fetal membrane and the uterine wall called placenta is formed. This is a disc which is embedded in the uterine wall. The placenta serves as the nutritive, respiratory and excretory organ of the fetus.

(b) When the female gamete/egg is not fertilised, this lining is not needed any longer. So, the lining slowly breaks and comes out through vagina as blood and mucus. This cycle takes place every month and is known as menstrual cycle.

Question 77.
List any two steps involved in sexual reproduction and write its two advantage. (Delhi 2017)
Answer:
The two main steps involved in sexual reproduction are:

- formation of male and female gametes.
- Fusion of a male gamete with a female gamete to form a new cell called zygote by the process of fertilisation.

The two important advantages of sexual reproduction are:

- It promotes diversity of characters in the offspring through genetic variations.
- It plays an important role in continuous evolution of better organisms that may lead to the origin of new species.

Question 78.
List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family? (AI 2017)
Answer:
Methods developed to prevent pregnancy are:

- barrier method, i.e., use of condoms, diaphragm, etc.
- chemical method, i.e., use of oral pills or vaginal pills.
- surgical method, i.e., vasectomy and tubectomy. Out of these methods, chemical method is not meant for males.

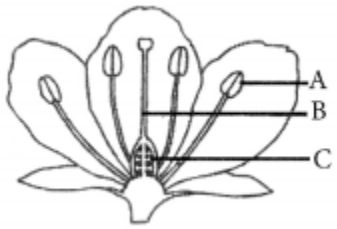
Use of these techniques help to keep control over number of children in a family, which directly effects prosperity of a family. One of the most common reason for deterioralion of women's health is frequent conception and child bearing. Controlled childbirth will directly affect women health and this will indirectly affect the prosperity of family and nation.

Question 79.
How do organisms, whether reproduced asexually or sexually maintain a constant chromosome number through several generations? Explain with the help of suitable example. (Delhi 2016)
Answer:
In organisms reproducing asexually, only single parent is involved in reproduction.

Therefore, amount of DNA remains same from parent to offspring. For example in Amoeba, whole organism divides into two daughter individuals by binary fission. Therefore, amount of DNA remain constant.

In organisms reproducing sexually, reproduction take place with the help of formation of haploid gametes. Gametes are special type of cells called reproductive cells which contain only half the amount of DNA as compared to the normal body cells of an organism. So, when a male gamete combines with a female gamete during sexual reproduction, then the new cell 'zygote' will have the normal amount of DNA. For example, the human sperm has 23 chromosomes and the human egg (or ovum) has also 23 chromosomes. So, when a sperm and an egg fuse together during fertilisation, then the zygote formed will have 23 + 23 = 46 chromosomes, which is the normal number of chromosomes.

Question 80.
Name the parts A, B and C shown in the following diagram and state one function of each. (Delhi 2016)



Answer:
In the given figure, part A is anther, part B is style and part C is ovule.
Anther (A) is a part of male reproductive organ of flower called stamen. Large number of pollen grains are formed inside anther. Style (B) and ovule (C) are parts of female reproductive organ of flower called carpel / pistil.

Style is a long conducting tube which gives the passage to pollen tube carrying male gametes so that it reaches ovary which contains one or more ovules. Ovules contain female gamete or egg. On fertilisation ovary converts into fruit and ovules give rise to seeds.

Question 81.
Suggest three contraceptive methods to control the size of human population which is essential for the health and prosperity of a country. State the basic principle involved in each. (Delhi 2016)

Answer:
Three contraceptive methods which can help to control human population are:
(i) Condom : It is a mechanical barrier which does not allow sperms and ovum to meet, hence prevents fertilisation. Condoms are made of thin rubber/latex sheath used to cover the penis in the male and vagina/cervix in female just before coitus (intercourse) so that the ejaculated semen is not released in the female reproductive tract.

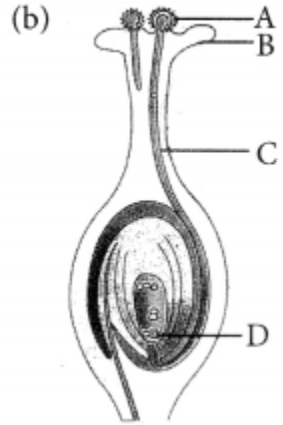
(ii) Intrauterine devices (IUDs): These are devices inserted by doctors or expert nurses in the uterus through vagina. These are presently available as non-medicated IUDs, copper releasing IUDs (CuT, etc.) and hormone releasing IUDs. They increase phagocytosis of sperms within uterus and suppress sperm motility and its fertilising capacity. They also make uterus unsuitable for implantation and cervix hostile to sperms.

(iii) Oral pills : These pills contain progesterone alone or a combination of progestogen and estrogen. They inhibit ovulation and make uterus unsuitable for implantation, hence prevent fertilisation.

Question 82.
What are the functions of testes in the human male reproductive system? Why are these located outside the abdominal cavity? Who is responsible for bringing about changes in appearance seen in boys at the time of puberty? (Delhi 2016)
Answer:
Testes, in human males, are the primary reproductive organs. They are the site of sperm formation. The testes also produce male sex hormone testosterone. Testes are located outside the abdominal cavity because sperm formation requires a lower temperature than normal body temperature. The temperature of the testes in the scrotum is about 2-2.5°C lower than normal body temperature. This temperature is ideal for sperm formation and development. Hormone testosterone brings about the development of secondary sexual characters during puberty in boys like growth of facial hair, deepening of voice, growth of scrotum and penis, accumulation of muscle mass, etc., and also regulates formation of sperms.

Question 83.
What is meant by pollination? Name and differentiate between the two modes of pollination in flowering plants. (Delhi 2016)
Answer:
Refer to answer 73.

Question 84.
(a) List two reasons for the appearance of variations among the progeny formed by sexual reproduction.



(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 fertilisation is over? (AI 2016)
Answer:
(a) Variations arise in sexually reproducing organisms on account of the following:
(i) Genetic variations occur of because DNA copying mechanism is not absolutely accurate.
(ii) Creation of new combinations of genetic variations because variations from two individuals combine during fusion of gametes.

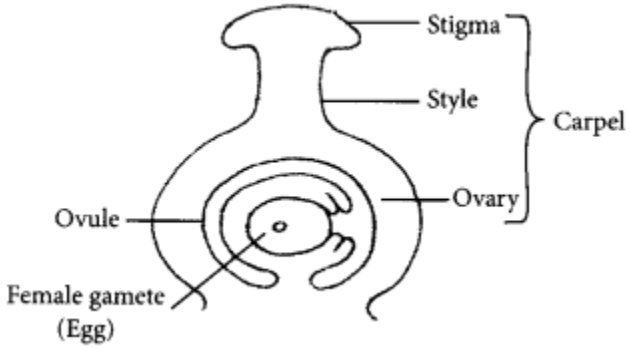
(b) (i) A is pollen grain.
(ii) Part B is stigma. It is the part of pistil (female reproductive organ) that receives pollen grains. Pollen grains reach stigma through various agencies like wind, water, insect, etc.
(iii) Pollen tube (C) carries male gametes to the ovule present in ovary. Male gametes fuse with egg and secondary nucleus to give rise to zygote and endosperm.
(iv) Female gamete (D) fuses with male gamete and converts to embryo after fertilisation.

Question 85.
What is pollination? List its two types and write a distinguishing feature between the two. (Foreign 2016)
Answer:
Refer to answer 73.

Question 86.
What is sexual reproduction? List its four significances. (Foreign 2016)
Answer:
Sexual reproduction is the process of production of offspringby the fusion of male and female gametes. Here, haploid gametes fuse to form diploid zygote which develop into a mature organism.
Significance of sexual reproduction are as follows:

- Sexual reproduction gives rise to genetic variations because of genetic recombination that takes place during fusion of gametes.
- Progenies arising through sexual reproduction sometimes show better combination of traits and get better adapted to their surroundings.
- Genetic recombination, interaction, etc., during sexual reproduction provide vigour and vitality to the offspring.
- Variations in genes play an important role in evolution.

Question 87.
Name the reproductive parts of an angiosperm. Where are these parts located? Explain in brief the structure of its female reproductive parts. (Foreign 2016)
Answer:
The reproductive parts of an angiosperm are stamen (male reproductive part) and carpel/pistil (female reproductive part). These are located in the flowers of an angiospermic plant.
The given diagram shows the structure of female reproductive part of a flower:



A Carpel is made of three parts: stigma, style and ovary. The top part of carpel is called stigma. Stigma is for receiving the pollen grains during pollination. Stigma is sticky so that pollen can stick to it. The middle part of carpel is called style. Style is a tube which connects stigma to the ovary. The swollen part at the bottom of a carpel is called ovary. The ovary contains ovules. Ovules contain the female gametes or female sex cells (egg)

of the plant. There are usually many ovules in the ovary. Each ovule contains only one female gamete of the plant.