12th Science Lesson 12 Questions in English

12] Reproduction in Organisms

1. Which of the following are involved in life cycle of living organism?

1) Birth
2) Growth
3) Maturation
4) Reproduction

a) 1, 2, 4
b) 2, 3, 4
c) 1, 3, 4
d) All the above

Explanation

Living organisms show a life cycle involving **birth, growth, development, maturation, reproduction and death**.

2. Which of the following statement is correct?

1) Reproduction is the fundamental feature of all living organisms
2) It is a biological process by which organisms produce their young ones.
3) The young ones grow and mature to repeat the process.

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Reproduction is the fundamental feature of all living organisms. It is a biological process by which organisms produce their young ones. The young ones grow and mature to repeat the process. Thus reproduction results in continuation of species and introduces variations in organisms, which are essential for adaptation and evolution of their own kind.

3. Which of the following process are involved in modes of reproduction?

1) Synthesis of RNA
2) Replication of DNA
3) Nitrogen cycle
4) Cell division

a) 1, 2, 4
b) 2, 3, 4
c) 1, 3, 4
d) All the above

Explanation

All modes of reproduction have some basic features such as **synthesis of RNA and proteins, replication of DNA, cell division and growth, formation of reproductive units** and their fertilization to form new individuals.

4. How many major modes of reproduction are there?

a) 3
b) 4
c) 2
d) 5

Explanation

Organisms exhibit two major modes of reproduction namely **asexual reproduction and sexual reproduction**.

5. Which of the following statement about Asexual reproduction is correct?

1) It involves gamete formation
2) Asexual reproduction is usually by amitotic or mitotic division of the somatic (body) cells
3) It is also known as somatogenic or blastogenic reproduction

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Reproduction by a single parent without the involvement of gamete formation is asexual reproduction and the offspring produced are genetically identical. Asexual reproduction is usually by amitotic or mitotic division of the somatic (body) cells, hence is also known as somatogenic or blastogenic reproduction.

6. How many gametes are involved in sexual reproduction?

a) 4
b) 5
c) 2
d) 3

Explanation

When **two parents participate in the reproductive process** involving **two types of gametes** (ova and sperm), it is called **sexual reproduction**.

7. In which of the following Asexual reproduction is common?

1) Bacteria
2) Archaea
3) Protista

a) 1, 2
b) 1, 3

c) 2, 3
d) All the above

Explanation

Asexual reproduction is wide spread among different organisms. It is common in **members of Protista, Bacteria, Archaea and in multicellular organisms** with relatively simple organisation.

8. Which of the following statement about Asexual reproduction is correct?

1) The off-springs show "uniparental inheritance" with genetic variation
2) The different modes of asexual reproduction seen in animals are fission, budding, fragmentation and regeneration
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The off-springs by **Asexual reproduction show "uniparental inheritance" without any genetic variation**. The different modes of asexual reproduction seen in animals are fission, budding, fragmentation and regeneration.

9. ____ is the division of the parent body into two or more identical daughter individuals

a) Fission
b) Fusion
c) Budding
d) Fragmentation

Explanation

Fission is the division of the parent body into two or more identical daughter individuals. Five types of fission are seen in animals. They are binary fission, multiple fission, plasmotomy, strobilation and sporulation.

10. Which of the following statement about Binary fission is correct?

1) In binary fission, the parent organism divides into two halves and each half forms a daughter individual.
2) The nucleus divides first a-mitotically or mitotically, followed by the division of the cytoplasm
3) The resultant off-springs are genetically identical to the parent.
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In binary fission, the **parent organism divides into two halves and each half forms a daughter individual.** The nucleus divides first a-mitotically or mitotically (karyokinesis), followed by the division of the cytoplasm (cytokinesis). The resultant off-springs are genetically identical to the parent.

11. Depending on the plane of fission, binary fission is classified into____ types

a) 4
b) 3
c) 5
d) 2

Explanation

Depending on the plane of fission, binary fission is of the following four types,

i) Simple irregular binary fission

ii) Transverse binary fission

iii) Longitudinal binary fission

iv) Oblique binary fission

12. Which of the following statement is correct?

1) Simple irregular binary fission is seen in Virus
2) The contractile vacuoles cease to function and disappear
3) The nucleoli disintegrate and the nucleus divides mitotically

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Simple irregular binary fission is seen in Amoeba like irregular shaped organisms, where the plane of division is hard to observe. The contractile vacuoles cease to function and disappear. The nucleoli disintegrate and the nucleus divides mitotically. The cell then constricts in the middle, so the cytoplasm divides and forms two daughter cells.

13. In Paramecium the macronucleus divides by____ and the micronucleus divides by____

a) Mitosis, Amitosis
b) Amitosis, Mitosis
c) Meiosis, Mitosis
d) Meiosis, Amitosis

Explanation

In transverse binary fission, the plane of the division runs along the transverse axis of the individual. e.g. Paramecium and Planaria. In Paramecium the **macronucleus divides by amitosis** and the **micronucleus divides by mitosis**.

14. Which of the following statement is correct?

1) In longitudinal binary fission, the nucleus and the cytoplasm divides in the longitudinal axis of the organism
2) In flagellates, the flagellum is retained usually by one daughter cell.
3) The basal granule is divided into two and the new basal granule forms a flagellum in the other daughter individual
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In longitudinal binary fission, the nucleus and the cytoplasm divides in the longitudinal axis of the organism. In flagellates, the flagellum is retained usually by one daughter cell. The basal granule is divided into two and the new basal granule forms a flagellum in the other daughter individual. e.g. Vorticella and Euglena.

15. Oblique binary fission is seen in_____

a) Euglena
b) Ceratium
c) Vorticella
d) Paramecium

Explanation

In **oblique binary fission** the **plane of division is oblique**. It is seen in **dinoflagellates**. e.g. **Ceratium**.

16. Which of the following statement is correct?

1) In multiple fission the parent body divides into many similar daughter cells simultaneously
2) Each cytoplasmic part encircles one daughter nucleus
3) If multiple fission produces four or many daughter individuals by equal cell division and the young ones do not separate until the process is complete, then this division is called repeated fission.
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In multiple fission the parent body divides into many similar daughter cells simultaneously. First, the nucleus divides repeatedly without the division of the cytoplasm, later the cytoplasm divides into as many parts as that of nuclei. Each cytoplasmic part encircles one daughter nucleus. This results in the formation of many smaller individuals from a single parent organism. If multiple

fission produces four or many daughter individuals by equal cell division and the young ones do not separate until the process is complete, then this division is called repeated fission. e.g. Vorticella.

17. During unfavourable conditions Amoeba withdraws its pseudopodia and secretes a___ wall

a) Three layered
b) Two layered
c) Four layered
d) Five layered

Explanation

During unfavourable conditions (increase or decrease in temperature, scarcity of food) Amoeba **withdraws its pseudopodia and secretes a three-layered**, protective, chitinous cyst wall around it and becomes inactive. This phenomenon is called encystment.

18. Which of the following statement is correct?

1) In the process of strobilation, several transverse fissions occur simultaneously giving rise to a number of individuals
2) They often do not separate immediately from each other
3) Aurelia is an example of Strobilation
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In the process of strobilation, several transverse fissions occur simultaneously giving rise to a number of individuals which often do not separate immediately from each other e.g. Aurelia.

19. __is the division of multinucleated parent into many multinucleate daughter individuals with the division of nuclei

a) Meiosis
b) Mitosis
c) Amitosis
d) Plasmotomy

Explanation

Plasmotomy is the **division of multinucleated parent into many multinucleate daughter individuals with the division of nuclei**. Nuclear division occurs later to maintain normal number of nuclei. Plasmotomy occurs in Opalina and Pelomyxa (Giant Amoeba).

20. During unfavourable conditions Amoeba multiplies by____ without encystment

a) Meiosis
b) Sporulation
c) Amitosis
d) Plasmotomy

Explanation

During unfavourable conditions Amoeba multiplies by sporulation without encystment. Nucleus breaks into several small fragments or chromatin blocks. Each fragment develops a nuclear membrane, becomes surrounded by cytoplasm and develops a spore-case around.

21. Which of the following statement is correct?

1) In budding, the parent body produces one or more buds and each bud grows into a young one.
2) The buds separate from the parent cannot lead a normal life
3) In sponges, the buds constrict and detach from the parent body and the bud develops into a new sponge
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In budding, the parent body produces one or more buds and each bud grows into a young one. **The buds separate from the parent to lead a normal life**. In sponges, the buds constrict and detach from the parent body and the bud develops into a new sponge.

22. Exogenous budding is found in____

a) Paramecium
b) Euglena
c) Hydra
d) E. coli

Explanation

When **buds are formed on the outer surface of the parent body**, it is known as **exogenous budding**. e.g. **Hydra**

23. Which of the following statement about bud formation in Hydra is correct?

1) In Hydra when food is plenty, the ectoderm cells increase and form a small elevation on the body surface
2) Ectoderm and endoderm are pushed out to form the bud.
3) The bud contains an interior lumen in continuation with parent's gastro-vascular cavity
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In Hydra when food is plenty, the ectoderm cells increase and form a small elevation on the body surface. Ectoderm and endoderm are pushed out to form the bud. The bud contains an interior

lumen in continuation with parent's gastro-vascular cavity. The bud enlarges, develops a mouth and a circle of tentacles at its free end. When fully grown, the bud constricts at the base and finally separates from the parent body and leads an independent life.

24. Endogenous budding is found in___

a) Hydra
b) E. coli
c) Noctiluca
d) Euglena

Explanation

In **Noctiluca**, hundreds of buds are formed inside the cytoplasm and many remain within the body of the parent. This is called **endogenous budding.**

25. Which of the following statement is correct?

1) In freshwater sponges and in some marine sponges a regular and peculiar mode of asexual reproduction occurs by internal buds
2) It is known as Gemmules
3) A completely grown gemmule is a soft ball, consisting of an internal mass of food-laden archaeocytes

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

In freshwater sponges and in some marine sponges a regular and peculiar mode of asexual reproduction occurs by internal buds called gemmules is seen. A **completely grown gemmule is a hard ball, consisting of an internal mass of food-laden archaeocytes**. During unfavourable conditions, the sponge disintegrates but the gemmule can withstand adverse conditions. When conditions become favourable, the gemmules begin to hatch.

26. Which of the following statement is correct?

1) In fragmentation, the parent body breaks into fragments
2) Fragmentation or pedal laceration occurs in many genera of sea anemones.
3) Lobes are constricted off from the pedal disc and each of the lobe grows mesenteries and tentacles to form a new sea anemone

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

In fragmentation, the parent body breaks into fragments (pieces) and each of the fragment has the potential to develop into a new individual. Fragmentation or pedal laceration occurs in many genera of sea anemones. Lobes are constricted off from the pedal disc and each of the lobe grows mesenteries and tentacles to form a new sea anemone.

27. Which of the following statement is correct?

1) In the tapeworm, Taenia Solium the gravid (ripe) proglottids are the oldest at the posterior end of the strobila
2) The gravid proglottids are regularly cut off either singly or in groups from the posterior end by a process called apolysis
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

In the tapeworm, **Taenia Solium** the gravid (ripe) proglottids are the oldest at the posterior end of the strobila. The gravid proglottids are regularly cut off either singly or in groups from the posterior end by a process called **apolysis**.

28. Which of the following is the Secondary host of Tanium Solium?

a) Pig
b) Rat
c) Human
d) Snake

Explanation

In Taenia Solium, apolysis is very significant since it helps in transferring the developed embryos from the primary host (man) to find a **secondary host (pig)**.

29. Regeneration was first studied in Hydra by____

a) Edwin
b) Abraham Trembley
c) Edward Jenner
d) Darwin

Explanation

Regeneration is regrowth in the injured region. Regeneration was first studied in Hydra by **Abraham Trembley** in 1740.

30. Morphallaxis type regeneration is found in___

a) Hydra
b) E. coli
c) Planaria
d) Both a and c

Explanation

Regeneration is of two types, morphallaxis and epimorphosis. **In morphallaxis the whole body grows from a small fragment e.g. Hydra and Planaria**. When Hydra is accidentally cut into several pieces, each piece can regenerate the lost parts and develop into a whole new individual.

31. Which of the following statement is correct?

1) Epimorphosis is the replacement of lost body parts.
2) It is of two types, namely reparative and restorative regeneration
3) In reparative regeneration, only certain damaged tissue can be regenerated
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Epimorphosis is the replacement of lost body parts. It is of two types, namely reparative and restorative regeneration. In reparative regeneration, only certain damaged tissue can be regenerated, e.g. human beings whereas in restorative regeneration severed body parts can develop. e.g. star fish, tail of wall lizard.

32. Which of the following statement about sexual reproduction is correct?

1) Sexual reproduction involves the fusion of male and female gametes
2) It results in the formation of Haploid zygote
3) This results in genetic variation
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Sexual reproduction involves the **fusion of male and female gametes to form a diploid zygote**, which develops into a new organism. It leads to genetic variation.

33. What are the types of sexual reproduction in animals?

1) Sporulation
2) Conjugation
3) Syngamy
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

The types of sexual reproduction seen in animals are **syngamy (fertilization) and conjugation**. In syngamy, the fusion of two haploid gametes takes place to produce a diploid zygote.

34. How many types of fertilization are there?

a) 2
b) 4
c) 3
d) 5

Explanation

Depending upon the place where the **fertilization takes place, it is of two types**: Internal fertilization and external fertilization.

35. Which of the following is not an example of external fertilization?

a) Sponges
b) Fishes
c) Reptiles
d) Amphibians

Explanation

Depending upon the place where the fertilization takes place, it is of two types. In external fertilization, the fusion of male and female gametes takes place outside the body of female organisms in the water medium. e.g. **sponges, fishes and amphibians**

36. Which of the following is not an example of Internal fertilization?

a) Reptiles
b) Fishes
c) Mammals
d) Aves

Explanation

In internal fertilization, the fusion of male and female gametes takes place within the body of female organisms. e.g. **reptiles, Aves and mammals**.

37. Which of the following statement is incorrect?

1) Sponge when macerated and squeezed through fine silk cloth, the cluster of cells pass through, and these can regenerate new sponges
2) This technique is used for cultivation of sponges.
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Sponge when macerated and squeezed through fine silk cloth, the cluster of cells pass through, and these can regenerate new sponges. This technique is used for cultivation of sponges.

38. Which of the following statement is correct?

1) The male and female gametes are produced by the same cell in Autogamy
2) Paramecium is an example of Autogamy
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The male and female gametes are produced by the same cell or same organism and both the gametes fuse together to form a zygote. e.g. Actinosphaerium and Paramecium.

39. Which of the following statement is correct about Exogamy?

1) The male and female gametes are produced by different parents
2) It is uniparental
3) Male and female gametes fuse together to form zygote
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Exogamy- The male and female gametes are produced by different parents and they fuse to form a zygote. So, it is **biparental**. e.g. Human – dioecious or unisexual animal

40. Which of the following statement is correct?

1) In Hologamy, lower organisms, sometimes the entire mature organisms do not form gametes
2) They themselves behave as gametes
3) Trichonympha is an example of Hologamy
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Lower organisms, sometimes the entire mature organisms do not form gametes but they themselves behave as gametes and the fusion of such mature individuals is known as hologamy e.g. Trichonympha.

41. Paedogamy is the sexual union of young individuals produced immediately after the division of the adult parent cell by___

a) Meiosis
b) Mitosis
c) Amitosis
d) None

Explanation

Paedogamy- It is the sexual union of young individuals produced immediately after the division of the adult parent cell by **mitosis.**

42. Which of the following statement is incorrect?

1) Merogamy is the fusion of small sized and morphologically different gametes (merogametes) takes place
2) The fusion of morphological and physiological identical gametes (isogametes) is called isogamy
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Merogamy- The fusion of small sized and morphologically different gametes (merogametes) takes place

Isogamy- The fusion of morphological and physiological identical gametes (isogametes) is called isogamy. e.g. Monocystis.

43. Which of the following statement is correct?

1) The fusion of similar gametes is called anisogamy
2) Anisogamy occurs in higher animals but it is customary to use the term fertilization instead of anisogamy or syngamy
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

The **fusion of dissimilar gametes is called anisogamy** (Gr. An-without; iso-equal; gam-marriage). Anisogamy occurs in higher animals but it is customary to use the term fertilization instead of anisogamy or syngamy. e.g. higher invertebrates and all vertebrates.

44. Which of the following statement is correct?

1) Conjugation is the permanent union of the two individuals of the same species
2) During their union both individuals, called the conjugants exchange certain amount of nuclear material (DNA) and then get separated.
3) Paramecium is an example of conjugation

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Conjugation is the temporary union of the two individuals of the same species. During their union both individuals, called the conjugants exchange certain amount of nuclear material (DNA) and then get separated. Conjugation is common among ciliates, e.g. Paramecium, Vorticella and bacteria (Prokaryotes).

45. How phases of life cycle does organisms have?

a) 2
b) 4
c) 5
d) 3

Explanation

Phases of life cycle: **Organisms have three phases** – Juvenile phase, reproductive phase and senescent phase.

46. Which of the following statement is correct?

1) Juvenile phase/ vegetative phase is the period of growth between the birth of the individual up to reproductive maturity
2) During reproductive phase/ maturity phase the organisms reproduce and their off-springs reach maturity period
    a) 1 alone
    b) 2 alone
    c) 1, 2
    d) None

Explanation

Juvenile phase/ vegetative phase is the period of growth between the birth of the individual up-to reproductive maturity. During reproductive phase/ maturity phase the organisms reproduce and their off-springs reach maturity period.

47. Which of the following statement is correct?

1) On the basis of time, breeding animals are of two types
2) Seasonal breeders reproduce at particular period of the year such as frogs
3) Continuous breeders continue to breed throughout their sexual maturity
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

On the basis of time, breeding animals are of two types: seasonal breeders and continuous breeders. Seasonal breeders reproduce at particular period of the year such as frogs, lizards, most birds, deers etc., Continuous breeders continue to breed throughout their sexual maturity e.g. honey bees, poultry, rabbit etc

48. Senescent phase begins at the end of___

a) Juvenile phase
b) Reproductive phase
c) Both a and b
d) None

Explanation

Senescent phase begins at the end of reproductive phase when degeneration sets in the structure and functioning of the body.

49. Development of an egg into a complete individual without fertilization is known as___

a) Fertilization
b) Parthenogenesis
c) Oogensis
d) None

Explanation

Development of an egg into a complete individual without fertilization is known as **parthenogenesis**.

50. Which of the following statement is correct?

1) Parthenogenesis was first discovered by Charles Bonnet in 1745
2) Parthenogenesis is of two main types namely, Natural Parthenogenesis and Artificial Parthenogenesis.
3) In certain animals, parthenogenesis occurs regularly, constantly and naturally in their life cycle
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

Parthenogenesis was first discovered by Charles Bonnet in 1745. Parthenogenesis is of two main types namely, Natural Parthenogenesis and Artificial Parthenogenesis. In certain animals, parthenogenesis occurs regularly, constantly and naturally in their life cycle and is known as natural parthenogenesis.

51. Which of the following is an example of Arrhenotoky?

a) Rat
b) Honey bee
c) Cow
d) Human

Explanation

Arrhenotoky: In this type only males are produced by parthenogenesis. e.g. honey bees

Thelytoky: In this type only females are produced by parthenogenesis. e.g. Solenobia

52. Which of the following is an example of Amphitoky?

a) Rat
b) Mice
c) Aphis
d) Spider

Explanation

Amphitoky: In this type **parthenogenetic egg may develop into individuals of any sex. e.g. Aphis**

53. Which of the following statement is correct?

1) Natural parthenogenesis may be of two types
2) Complete parthenogenesis is the only form of reproduction in certain animal
3) Incomplete parthenogenesis is found in some animals in which both sexual reproduction and parthenogenesis occurs

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

Natural parthenogenesis may be of two types, viz., complete and incomplete. Complete parthenogenesis is the only form of reproduction in certain animals and there is no biparental sexual reproduction. There are no male organisms and so, such individuals are represented by females only. Incomplete parthenogenesis is found in some animals in which both sexual reproduction and parthenogenesis occurs.

54. In honeybees; fertilized eggs (zygotes) develop into____

1) Queen
2) Drones
3) Worker

a) 1, 2
b) 1, 3
c) 2, 3
d) All the above

Explanation

In honeybees; fertilized eggs (zygotes) develop into queen and workers, whereas unfertilized eggs develop into drones (male). In paedogenetic parthenogenesis (paedogenesis) the larvae produce a new generation of larvae by parthenogenesis. It occurs in the sporocysts and Redia larvae of liver fluke. It is also seen in the larvae of some insects.

55. Which of the following are examples of Artificial parthenogenesis?

1) Mammals
2) Annelid
3) Seaurchin eggs
    a) 1, 2
    b) 1, 3
    c) 2, 3
    d) All the above

Explanation

In artificial parthenogenesis, the unfertilized egg (ovum) is induced to develop into a complete individual by physical or chemical stimuli. e.g., **Annelid and seaurchin eggs**.