

# Reproduction in Organisms

## Question1

Arrange the sequence of different hormones for their role during gametogenesis.

- (A) Gonadotropin LH stimulates synthesis and secretion of Androgen
- (B) Gonadotropin releasing hormone from hypothalamus
- (C) Androgen stimulates spermatogenesis
- (D) Gonadotropin FSH helps in the process of spermiogenesis
- (E) Gonadotropins from anterior pituitary gland.

Choose the correct answer from the options given below :

[NEET 2023 mpr]

Options:

A.

(E), (A), (D), (B), (C)

B.

(C), (A), (D), (E), (B)

C.

(B), (E), (A), (C), (D)

D.

(D), (B), (A), (C), (E)

**Answer: C**

**Solution:**

The correct sequence of hormones during gametogenesis is as follows :

(B) Gonadotropin-releasing hormone from hypothalamus : This is the first step as the hypothalamus releases gonadotropin-releasing hormone (GnRH).

(E) Gonadotropins from the anterior pituitary gland : GnRH stimulates the anterior pituitary to release gonadotropins, luteinizing hormone (LH), and follicle-stimulating hormone (FSH).

(A) Gonadotropin LH stimulates synthesis and secretion of androgen : LH stimulates the Leydig cells in the testes to produce androgens.

(C) Androgen stimulates spermatogenesis : Androgens, such as testosterone, stimulate the process of spermatogenesis.

(D) Gonadotropin FSH helps in the process of spermiogenesis : FSH stimulates the Sertoli cells in the testes, which help in the process of spermiogenesis, the transformation of spermatids into mature spermatozoa.

So, the correct answer is Option C : (B), (E), (A), (C), (D).

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## Question2

Select the correct statement/s with respect to mechanism of sex determination in Grasshopper.

(A) It is an example of female heterogamety.

(B) Male produces two different types of gametes either with or without X chromosome.

(C) Total number of chromosomes (autosomes and sex chromosomes) is same in both males and females.

(D) All eggs bear an additional X chromosome besides the autosomes.

Choose the correct answer from the options given below :

[NEET 2023 mpr]

Options:

- A.
- (B) and (D) only
- B.
- (A), (C) and (D) only
- C.
- (A) only
- D.
- (A) and (C) only

Answer: A

Solution:

(A) It is not an example of female heterogamety. It is an example of male heterogamety because males have two different types of gametes (XO and OO), while females have only one type (XX).

(B) This statement is correct. Males produce two different types of gametes, either with (X) or without (O) an X chromosome.

(C) This statement is incorrect because the total number of chromosomes is not the same in both males and females. Females have XX, and males have XO.

(D) This statement is correct. All eggs bear an additional X chromosome besides the autosomes.

Question3

List-1	List-2
(a) Chlamydomonas	(i) Conidia
(b) Penicillium	(ii) Zoospores
(c) Hydra	(iii) Gemmules
(d) Sponge	(iv) Buds

**Choose the correct answer from the options given below :  
[NEET Re-2022]**

**Options:**

- A. (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)
- B. (a) - (i), (b) - (iv), (c) - (iii), (d) - (ii)
- C. (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)
- D. (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)

**Answer: C**

**Solution:**

**Solution:**

Different ways of asexual reproduction are seen in different organisms.

Chlamydomonas -Zoospores

Penicillium - Conidia

Hydra - Buds

Sponge - Gemmules

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## Question4

**Genera like Selaginella and Salvinia produce two kinds of spores. Such plants are known as:  
[NEET 2021]**

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**Options:**

- A. Homosorus
- B. Heterosorus
- C. Homosporous
- D. Heterosporous

**Answer: D**

**Solution:**

**Solution:**

Plants like Selaginella and Salvinia produce two kinds of spore i.e., microspores and macrospores.

They are known as heterosporous.

Most of the pteridophytes produce single type of spores and are called homosporous

Sorus are brownish or yellowish cluster of sporeproducing structures located on the lower surface of fern leaves.

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## Question5

**Which of the following plants is monoecious?  
[NEET 2021]**

**Options:**

- A. Carica papaya
- B. Chara
- C. Marchantia polymorpha
- D. Cycas circinalis

**Answer: B**

**Solution:**

**Solution:**

- When male and female sex organs are present on same plant body, such plants are said to be monoecious.
  - Most of the species of Chara are monoecious.
  - Cycas circinalis, Carica papaya and Marchantia polymorpha are dioecious.
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## Question6

**In some plants, the female gamete develops into embryo without fertilization. This phenomenon is known as  
[2019]**

**Options:**

- A. Parthenocarpy
- B. Syngamy
- C. Parthenogenesis
- D. Autogamy

**Answer: C**

**Solution:**

**Solution:**

The phenomenon in which female gamete develops into embryo without getting fused with male gamete (fertilisation) is called parthenogenesis.

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## Question7

**Offsets are produced by  
[2018]**

**Options:**

- A. Meiotic divisions
- B. Mitotic divisions
- C. Parthenogenesis
- D. Parthenocarpy

**Answer: B**

**Solution:**

**Solution:**

Offset is a vegetative part of a plant, formed by mitosis.

- Meiotic divisions do not occur in somatic cells.
- Parthenogenesis is the formation of embryo from ovum or egg without fertilisation.
- Parthenocarpy is the fruit formed without fertilisation, (generally seedless)

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## Question8

**Which of the following flowers only once in its life-time?  
[2018]**

**Options:**

- A. Bamboo species
- B. Jackfruit
- C. Papaya
- D. Mango

**Answer: A**

**Solution:**

**Solution:**

Bamboo species are monocarpic i.e., flower generally only once in its life-time after 50-100 years.

Jackfruit, papaya and mango are polycarpic i.e., produce flowers and fruits many times in their life-time.

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## Question9

**Which one of the following statements is not correct?  
[NEET 2016 P2]**

**Options:**

- A. Water hyacinth, growing in the standing water, drains oxygen from water that leads to the death of fishes.

- B. Offspring produced by the asexual production are called clone.
- C. Microscopic, motile asexual reproductive structures are called zoospores.
- D. In potato, banana and ginger, the plantlets arise from the internodes present in the modified stem.

**Answer: D**

**Solution:**

**Solution:**

Plantlet always arise from nodes of stem or modified stem

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## Question10

**Which one of the following in generates new genetic combinations leading to variation?**  
**[NEET 2016 P2]**

**Options:**

- A. Nucellar polyembryony
- B. Vegetative reproduction
- C. Parthenogenesis
- D. Sexual reproduction

**Answer: C**

**Solution:**

**Solution:**

New genetic combination develops after sexual reproduction due to following reasons

- (1) Crossing over during gamete formation
- (2) Chance combination of gametic fusion
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## Question11

column-I		columnII	
a.	Pistils fused together	i	Gametogenesis
b	Formation of gametes	ii	Pistillate
c	Hyphae of higher Ascomycetes	iii	Syncarpous
d	Unisexual female flower	iv	Dikaryotic

### [NEET 2016 P2]

#### Options:

- A. a - iii, b - i, c - iv, d - ii
- B. a - iv, b - iii, c - i, d - ii
- C. a - ii, b - i, c - iv, d - iii
- D. a - i, b - ii, c - iv, d - iii

**Answer: A**

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## Question12

**Which of the following pairs is not correctly matched?**  
**[NEET 2015]**

#### Options:

A.

Mode of reproduction Example  
Binary fission -Sargassum

B.

Mode of reproduction Example  
Conidia -Penicillium

C.

Mode of reproduction Example  
Offset Water -hyacinth

D.

Mode of reproduction Example  
Rhizome-Banana

**Answer: A**

**Solution:**

**Solution:**

Binary fission usually takes place in Amoeba, Paramoecium and Euglena.

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## Question13

**In which one pair both the plants can be vegetatively propagated by leaf pieces?  
[2005]**

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**Options:**

- A. Agave and Kalanchoe
- B. Bryophyllum and Kalanchoe
- C. Asparagus and Bryophyllum
- D. Chrysanthemum and Agave

**Answer: B**

**Solution:**

**Solution:**

(b) Leaves of a number of plants develop or possess adventitious buds for vegetative propagation, e.g., Bryophyllum, Kalanchoe, Adiantum caudatum.

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## Question14

**In ginger vegetative propagation occurs through:  
[NEET 2015 C]**

**Options:**

- A. Offsets
- B. Bulbils
- C. Runners
- D. Rhizome



**Answer: D**

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## Question15

**In oogamy, fertilization involves (2014)**

**Options:**

- A. a small non-motile female gamete and a large motile male gamete
- B. a large non-motile female gamete and a small motile male gamete
- C. a large non-motile female gamete and a small non-motile male gamete
- D. large motile female gamete and a small nonmotile male gemete

**Answer: B**

**Solution:**

**Solution:**

(b) : Oogamy is the sexual reproduction involving the formation and subsequent fusion of a large, usually stationary, female gamete and a small motile male gamete. The female gamete may contain nourishment for the development of the embryo, which is often retained and protected by the parent organism.

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## Question16

**Monoecious plant of Chara shows occurrence of : [NEET 2013]**

**Options:**

- A. stamen and carpel of the same plant
- B. upper antheridium and lower oogonium on the same plant
- C. upper oogonium and lower antheridium on the same plant
- D. antheridiophore and archegoniophore on the same plant

**Answer: C**

**Solution:**

**Solution:**

(c) Male sex organ is called antheridium or globule while female sex organ is called oogonium. They develop on the same

branchlet in the same plant in Chara.

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## Question17

**Syngamy can occur outside the body of the organism in [KN NEET 2013]**

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**Options:**

- A. Fungi
- B. Mosses
- C. Algae
- D. Ferns

**Answer: C**

**Solution:**

**Solution:**

(c) In most aquatic organisms, such as a majority of algae and fishes as well as amphibians, syngamy occurs in the external medium (water), i.e., outside the body of the organism. This type of gametic fusion is called external fertilisation.

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## Question18

**Meiosis takes place in : [NEET 2013]**

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**Options:**

- A. Conidia
- B. Gemmule
- C. Megaspore
- D. Meiocyte

**Answer: D**

**Solution:**

**Solution:**

(d) Meiosis takes place in meiocyte while conidia and gemmule are asexual structures and megaspore is female gametophyte i.e., embryosac.

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## Question19

**Which one of the following is correctly matched?  
[2012]**

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**Options:**

- A. Onion - Bulb
- B. Ginger - Sucker
- C. Chlamydomonas - Conidia
- D. Yeast - Zoospores

**Answer: A**

**Solution:**

(a) Onion - Bulb - Underground stem  
Ginger - Rhizome  
Chlamydomonas - Zoospore  
Yeast - Ascospores

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## Question20

**The “Eyes” of the potato tuber are  
[2011]**

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**Options:**

- A. root buds
- B. flower buds
- C. shoot buds
- D. axillary buds

**Answer: D**

**Solution:**

**Solution:**

(d) The axillary buds of the potato tuber are called “eyes” in common language. They are found at the nodes of the stem tuber

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## Question21

## What is common between vegetative reproduction and apomixis? [2011M]

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### Options:

- A. Both are applicable to only dicot plants
- B. Both bypass the flowering phase
- C. Both occur round the year
- D. Both produces progeny identical to the parent

**Answer: D**

### Solution:

#### Solution:

(d) Vegetative reproduction and apomixis both are asexual methods of reproduction, which gives the progeny genetically similar to parent

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## Question22

**Which one of the following pairs is wrongly matched while the remaining three are correct?  
[2011M]**

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### Options:

- A. Penicillium - Conidia
- B. Water hyacinth - Runner
- C. Bryophyllum - Leaf buds
- D. Agave - Bulbils

**Answer: B**

### Solution:

#### Solution:

(b) Water hyacinth is a free floating perennial plant, which can grow to a height of 3 feet.

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## Question23

**Vegetative propagation in mint occurs by:  
[2009]**

**Options:**

- A. offset
- B. rhizome
- C. sucker
- D. runner

**Answer: C****Solution:****Solution:**

Sucker is a mode of vegetative propagation. It is a non- green slender stem branch which arises from the underground base of erect shoot or crown. It grows horizontally in the soil and ultimately comes out to form a new aerial shoot or crown. Each sucker has nodes with scale leaf and axillary bud. For example, mint has the sucker. It has adventitious root and scale leaf.

## Question24

**What is true for cleavage?  
[2002]**

**Options:**

- A. Size of embryo increases
- B. Size of cells decrease
- C. Size of cells increase
- D. Size of embryo decreases

**Answer: B****Solution:****Solution:**

(b) Cleavage involves repeated cell division without increase in size. But cell size decreases  
In placental mammals (including humans) where nourishment is provided by the mother's body, the eggs have a very small amount of yolk and undergo holoblastic cleavage. Other species, such as birds, with a lot of yolk in the egg to nourish the embryo during development, undergo meroblastic cleavage.

## Question25

**During regeneration, modification of an organ to other organ is known as  
(2001)**

**Options:**

- A. morphogenesis
- B. epimorphosis
- C. morphallaxis
- D. accretionary growth

**Answer: B****Solution:****Solution:**

(b): There are two mechanisms of regeneration: morphallaxis and epimorphosis.

(i) *Morphallaxis* - It involves the reconstruction of the whole body from a small fragment by reorganizing the existing cells. The regenerated organism is smaller than the original one, e . g. Amoeba. However, after the completion of the process it grows and attains normal size after some time.

(ii) *Epimorphosis* - It replaces a lost organ of the body by proliferating new cells from the surface of the wound or injured part. Regeneration of an appendage in an arthropod, arm in a starfish, and tail in a lizard occurs by the process of epimorphosis.

## Question26

**Geocarpic fruits are produced by  
[2000, 02]**

**Options:**

- A. onion
- B. watermelon
- C. ground nut
- D. carrot

**Answer: C****Solution:**

(c) Geocarpic fruits are those which develop underground. Groundnut is the fruit which develops underground, onion and carrot also occur within the soil but onion is a modified stem while carrot is a modified root.

## Question27

**The process of series of changes from larva to adult after embryonic development is called  
(1999)**

**Options:**

- A. regeneration
- B. growth
- C. metamorphosis
- D. ageing

**Answer: C**

**Solution:**

**Solution:**

(c) : Metamorphosis is a process of series of changes of form from larva to adult after embryonic development. Regeneration is defined as replacement, repair or restoration of the lost or damaged structures or reconstitution of the whole body from a small fragment of it during the post-embryonic life of an organism. Growth is the result of greater anabolic (synthetic) processes over the catabolic (destructive) processes in the organism. Ageing may be defined as the progressive deterioration in the structure and functions of the cells, tissues and organs of an organism with the advancing age.

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## Question28

**'Nothing lives forever, but life continues'. What does it mean? (1995)**

**Options:**

- A. Older die but new are produced due to reproduction.
- B. Nothing can produce without death.
- C. Death has nothing to do with the continuation of life.
- D. Parthenogenesis is must for sexual reproduction.

**Answer: A**

**Solution:**

**Solution:**

(a) : Death is a natural process by which the individuals die either naturally or due to illness, accident etc. But, before dying generally, individuals leave new individuals of their own kind through reproduction and thus the life continues.

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## Question29

**A perennial plant differs from biennial in [1994]**

**Options:**

- A. having underground perennating structure
- B. having asexual reproductive structures
- C. being tree species
- D. not dying after seasonal production of flowers

**Answer: D**

**Solution:**

**Solution:**

(d) Perennials survive for more than two years and produce flowers and fruits during specific seasons. They are usually herbs, shrubs or trees whereas biennials are those plants which complete their life cycle in two years. These plants are usually herbs

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## Question30

**A population of genetically identical individuals, obtained from asexual reproduction is [1993]**

**Options:**

- A. Callus
- B. Clone
- C. Deme
- D. Aggregate

**Answer: B**

**Solution:**

Cloning is a technique by which genetically same individuals can be produced without including any sexual reproduction eg. Dolly sheep.  
The term clone is derived from Klon, the Greek word for “twig”, refering to the process, whereby a new plant can be created from a twig

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## Question31

**Vegetative reproduction of Agave occurs through [1991]**



**Options:**

- A. rhizome
- B. stolon
- C. bulbils
- D. sucker

**Answer: C**

**Solution:**

**Solution:**

Vegetative reproduction occurs in Agave through bulbils. Bulbils are the specialised bud vegetative or floral that modify into a swollen structure. It separates from the parent plant and on approach of favourable condition gives rise to new plant.

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## Question32

**Cells become variable in morphology and function in different regions of the embryo. The process is [1989]**

**Options:**

- A. differentiation
- B. metamorphosis
- C. organisation
- D. rearrangement

**Answer: A**

**Solution:**

Cells become variable in shape, size & getting their specialisation for the formation of particular tissue or organ in future foetus. They place themselves at some specific regions in embryo for further organogeny.

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