

Objective

- Growing an entire new plant from part of the original plant is called:
 (A) Regeneration (B) Fragmentation (C) Budding (D) Vegetative propagation
- Rhizopus reproduces asexually by:
 (A) Binary fission (B) Endospore formation
 (C) Budding (D) Spore formation
- A corm develops into new garlic plant. This is the process of:
 (A) Regeneration (B) Meiosis
 (C) Gametogenesis (D) Vegetative propagation
- Pollination is the transfer of pollens from:
 (A) Petal to sepal (B) Sepal to petal (C) Anther to stigma (D) Stigma to anther
- After fertilization in plants, the fruit develops from:
 (A) Petals (B) Ovary wall (C) Ovule wall (D) Anther
- Which part of the female reproductive system receives egg cells from the ovary?
 (A) Fallopian tube (B) Cervix (C) Uterus (D) Vagina
- Inside testes, the sperms are produced in:
 (A) Collecting duct (B) Vas deferens
 (C) Sperm duct (D) Seminiferous tubules
- Which of these cells has haploid number of chromosomes?
 (A) Spermatogonium (B) All of these
 (C) Primary spermatocyte (D) Secondary spermatocyte
- A process in which genetic material of one generation is transmitted next is known as:
 (A) Reduction (B) Reproduction (C) Circulation (D) Respiration
- Connection between embryo and uterus wall is called:
 (A) follicle (B) vagina (C) placenta (D) cervix
- Which one is the middle part of carpel:
 (A) ovary (B) stigma (C) filament (D) style
- To attract flies and birds is the function of:
 (A) petal (B) anther (C) stamen (D) sepal
- In flower the carpels is called:
 (A) androecium (B) gynoecium (C) corolla (D) calyx
- An example of diploid cell is:
 (A) Endosperm nucleus (B) Sperm Cell (C) Zygote (D) Egg Cell
- Bryophyllum (Pather Chut) is an example of:
 (A) Bulb (B) Suckers (C) Stem Tubers (D) Leaves
- Asexual reproduction by suckers takes place in:
 (A) Mint (B) Ginger (C) Potato (D) Lilly

17. Tests and ovaries are called:
 (A) Embryo (B) Gonads (C) Gametes (D) Glands
18. Some cells of ovary prepare structures called:
 (A) Seminiferous tubules (B) Vas deferens
 (C) Seminal vesicles (D) Follicles
19. A cluster of specialized cells which surrounds and nourishes, each egg is called:
 (A) Cervix (B) Uterus (C) Follicle (D) Fallopian tubes
20. After fertilization in plants are seed develops from:
 (A) ovule (B) sepals (C) petals (D) ovary
21. In flower stigma, style and ovary is collectively called:
 (A) stamen (B) carpel (C) petal (D) sepal
22. The units of Gynoecium are called:
 (A) Petals (B) Stamens (C) Carpels (D) Sepals
23. These reproduce by Budding:
 (A) Rhizopus (B) Tulips (C) Planaria (D) Corals
24. Queen honey bee is:
 (A) Diploid (B) Triploid (C) Polyploidy (D) Haploid
25. Which method of natural vegetative reproduction is found in chrysanthemum?
 (A) stem tubers (B) suckers (C) bulbs (D) c corms
26. When pollen grains mature, they are transferred to:
 (A) Carpel (B) Root (C) Stigma (D) Sepal
27. The secretion of prostate gland of rabbit:
 (A) Facilitate Urine Excretion (B) Neutralize the acidity of Semen's Fluid
 (C) Lubricate the Urinogenital Ducts (D) Provide Nutrients of Sperms
28. Fusion of egg and sperm is called:
 (A) Plumule (B) Pollination (C) Radicle (D) Fertilization
29. part of the female reproductive system receives egg cells from the ovary.
 (A) Cervix (B) Vagina (C) Fallopian tube (D) Uterus
30. After fertilization Zygote is carried to:
 (A) Fallopian tube (B) Cervix (C) Vagina (D) Uterus
31. Sperm and Fluid containing material is called:
 (A) Spermatogonia (B) Semen
 (C) Secondary Spermatocytes (D) Primary Spermatocytes
32. In rabbit, sperms are formed in:
 (A) Seminiferous tubules (B) Urethra (C) Scrotum (D) Seminal vesicles
33. Which animal is not able to reproduce during the months of summer?
 (A) dog (B) rabbit (C) cat (D) monkey
34. According to UNAID 0.1% of adult population of Pakistan has disease:
 (A) T:B (B) polio (C) aids (D) hepatitis

35. Pakistan's Federal Ministry of Health established NACP in:
 (A) 1990 (B) 1989 (C) 1988 (D) 1987
36. It is simple and most common method of asexual reproduction:
 (A) Layering (B) Binary fission (C) Grafting (D) Budding
37. Binary fission is seen in:
 (A) Planarian (B) Hydra (C) Corals (D) yeast
38. Amoeba reproduced asexual by:
 (A) Fragmentation (B) Binary fission (C) acrylic acid (D) Budding
39. In which type of the followings reproduction ways buds are formed:
 (A) Fragmentation (B) Binary Fission (C) Budding (D) Regeneration
40. The main method of reproduction. in sponges hydra and corals is:
 (A) Spores (B) Regeneration (C) Fragmentation (D) Budding
41. A sexual reproduction is yeast takes place by:
 (A) Budding (B) spore formation (C) fragmentation (D) binary fission
42. Asexual reproduction in Rhizopus takes place by:
 (A) Endospore (B) Spores (C) Budding (D) Binary fission
43. Each spore is covered with a thick wall called:
 (A) semi permeable (B) membrane (C) cyst (D) fragment
44. Parthenogenesis is a type of reproduction:
 (A) fragmentation (B) Grafting (C) Sexual (D) A-Sexual
45. The latest method of vegetative propagation is:
 (A) cloning (B) layering (C) cutting (D) grafting
46. Onion and tulips plants are reproduce by:
 (A) rhizomes (B) bulbs (C) stemtubers (D) corms
47. Example of stem tuber is:
 (A) Garlic (B) Ginger (C) Potato (D) Tulip
48. Ginger reproduce by:
 (A) Corns (B) Stem Tubers (C) Bulbs (D) Rhizomes
49. Garlic reproduce by:
 (A) Corms (B) Stem tubers (C) Rhizome (D) Bulbs
50. Vegetative propagation in mint takes place by:
 (A) Corms (B) Suckers (C) Rhizome (D) Leaves
51. The plant in which vegetative propagation occurs by leave is called:
 (A) Ferns (B) Water lilly (C) Bryophylum (D) Ginger
52. Normally external fertilization occurs in:
 (A) Fishes (B) Mammals (C) Birds (D) Reptiles
53. Sperms and fluid collectively called:
 (A) Scrotum (B) Semen (C) Hormones (D) Follicle

54. These are horizontal underground stems:
 (A) Rhizomes (B) Suckers (C) Tubers (D) None of these
55. From this part of the embryo, shoot is formed:
 (A) Hypocotyl (B) Plumule (C) Radicle (D) Cotyledons
56. It is not a part of Carpel:
 (A) Stigma (B) Ovary (C) Anther (D) Style
57. Every Ripen Ovule is called:
 (A) Fruit (B) Leave (C) Flower (D) Seed
58. The Male Reproductive Part of Flower is called:
 (A) Stamen (B) Filament (C) Carpel (D) Style
59. Semen of Rabbit consists of sperms:
 (A) 1% (B) 10% (C) 80% (D) 90%
60. Corel reproduce by means of:
 (A) Binary Fission (B) Fragmentation (C) Budding (D) Sexual Reproduction
61. Part of Embryo in the Seed gives rise to plant shoot:
 (A) Testa (B) Radicle (C) Cotyledon (D) Plumule
62. Double Fertilization result into:
 (A) Diploid Endosperm Nucleus (B) Ovule
 (C) Egg (D) Triploid Endosperm Nucleus
63. Root develops from:
 (A) Radicle (B) Micropyle (C) Plumule (D) Testa
64. In how many days embryo develops to offspring in rabbit?
 (A) 25-30 days (B) 30-32 days (C) 20-30 days (D) 30-40 days
65. Seed absorbs water through:
 (A) Hilum (B) Integument (C) Micropyle (D) Testa
66. The outer most whorl of flower is called:
 (A) Calyx (B) Androecium (C) Gynoecium (D) Corolla
67. The unit of androecium is:
 (A) Pollen grains (B) Stamens (C) gametes (D) Anther
68. Pollen grains are produced in anther of flower by:
 (A) Multiple (B) Binary fission (C) Meiosis (D) Mitosis
69. Individual units of corolla are:
 (A) Stamens (B) Sepias (C) Carpels (D) Petals
70. Microspores are produced by:
 (A) Meiosis (B) Fission (C) Budding (D) Mitosis
71. Fusion of one Sperm with egg to form zygote and other sperm Nucleus with fusion nucleus to form 3N Endosperm Nucleus is called:
 (A) Double Fertilization (B) Collecting Duct
 (C) Fertilization (D) Triple Fertilization

72. The male reproductive part of flower is:
 (A) ovary (B) stamen (C) carpel (D) stigma
73. Essential process for continuation of species is:
 (A) Locomotion (B) respiration (C) Cloning (D) Reproduction
74. The embryonic stem above the point of attachment is called:
 (A) Epicotyl (B) Hypocotyl (C) Radicle (D) Plumule
75. Ovule develop into:
 (A) Endosperm (B) Seed (C) Pollen Sacs (D) Fruit
76. The male and female gametes are produced in specialized organs are called:
 (A) Zygote (B) Placenta (C) Gonads (D) Gametogenesis
77. Is Diploid (2N):
 (A) Sperm cell (B) Eridosperm (C) Egg cell (D) Zygote
78. Pollen tube carries:
 (A) megaspores (B) microspores (C) sperms (D) eggs
79. The female reproductive part 'of flower is:
 (A) stamens (B) petals (C) sepals (D) carpels
80. Fourth whorl of flower is:
 (A) gynoecium (B) androecium (C) corolla (D) calyx
81. Ovary change into ripen:
 (A) Into flower (B) Into fruit (C) Into nectar (D) Into seed
82. Fruit is formed from:
 (A) Stigma (B) Endosperm (C) ovary (D) Ovule
83. The transfer of pollen grain from anther to stigma is called:
 (A) fission (B) budding (C) fertilization (D) pollination
84. A wind pollinated flower:
 (A) willow (B) Orchid (C) Buttercups (D) Sunflower
85. The scar present on seed coat is called:
 (A) Integument (B) Hilum (C) Ovule (D) Micropile
86. Optimum temperature for seed growth is:
 (A) 15-25°C (B) 30-35°C (C) 25-30°C (D) 35-38°C
87. From which part of embryo of root is formed:
 (A) Epicotyls (B) plumule (C) Cotyledons (D) Radical
88. Formation of gametes is called:
 (A) Gametogenesis (B) sporogenesis (C) Spermatogenesis (D) Oogenesis
89. Which of the cells of ovary have diploid number of chromosomes?
 (A) First polar body (B) Oogonia (C) Egg cell (D) Secondary oocytes
90. In which of the following animals groups. external fertilization takes place:
 (A) Mammals (B) Birds (C) Amphibians (D) Reptiles

91. Internal Fertilization takes place in:
 (A) Fungi (B) Fishes (C) Frog (D) Reptile
92. From epididymis, sperms move to a sperm duct is called:
 (A) Seminal vesicles (B) Seminiferous tubules (C) Semen (D) Vas deferens
93. Some invertebrates also reproduce through binary fission:
 (A) Pollination (B) Budding
 (C) Asexual reproduction (D) Sexual reproduction
94. It is the process used to propagate sugar cane plantation:
 (A) cutting (B) fragmentation (C) layering (D) grafting
95. An examples of corm is:
 (A) Potato (B) Garlic (C) Onion (D) Ginger
96. The amount of sperms in semen is:
 (A) 90% (B) 80% (C) 10% (D) 50%
97. The example of Rhizome is:
 (A) Potato (B) Garlic (C) Onion (D) Ginger
98. Reproductive part of plant is:
 (A) Flower (B) Root (C) Leaf (D) Stem
99. An example of insect pollinated flower is:
 (A) Willow (B) Rose (C) Hazel (D) Grass
100. Which one of the following is a Unicellular fungus:
 (A) Yeast (B) Hydra (C) Coral (D) Sponge
101. Part of testes provides nutrients to sperms:
 (A) Prostate glands (B) Cowper's glands (C) Seminal vesicles (D) Collecting ducts
102. About % of the total adult Pakistanis are infected by HIV.
 (A) 0.1 (B) 10 (C) 1.0 (D) 2.0
103. seed have epigeal germination:
 (A) Pea (B) Maize (C) Coconut (D) Cotton
104. There are types of pollination.
 (A) 2 (B) 3 (C) 4 (D) 5
105. Unfertilized bees eggs develop into haploid males called:
 (A) queens (B) drones (C) kings (D) workers
106. Cyst is formed in?
 (A) Planaria (B) Hydra (C) Amoeba (D) Yeast
107. In sweet potato, method of artificial vegetative propagation is:
 (A) Tissue culture (B) Suckers (C) Grafting (D) Cutting
108. Whose part is style?
 (A) Petal (B) Carpel (C) Sepal (D) Stamen
109. Development of new offspring from unfertilized egg is called:
 (A) Fragmentation (B) Binary fission (C) Budding (D) Parthenogenesis

110. The latest method of using vegetative tissue or cell of single parent to produce identical offspring is:
 (A) Cloning (B) Pollination (C) Grafting (D) Cuttings
111. An example of sexually transmitting disease is:
 (A) Hepatitis (B) Whooping cough (C) Small pox (D) AIDS
112. In rabbit, the glands which produce secretions to lubricate the ducts are:
 (A) Prostate (B) Adrenal (C) Seminal vesicles (D) Cowper's
113. Multiple fission occurs in:
 (A) Amoeba (B) Yeast (C) Hydra (D) Rhizopus
114. After fertilization in plants, the fruits develops from:
 (A) Petal (B) Anther (C) Ovule wall (D) Ovary wall
115. Actually, an immature plant is:
 (A) Radical (B) Ovule (C) Embryo (D) Endosperm
116. Number of chromosomes in endosperm nucleus is:
 (A) 4N (B) 1N (C) 3N (D) 2N
117. Double fertilization is the feature of:
 (A) Gymno Sperms (B) Ferns (C) Seedless plants (D) Flowering. Plants
118. Fragmentation occurs in:
 (A) Planaria (B) Bacteria (C) Rhizopus (D) Yeast

Chapter : 14

Reproduction



Subjective

Q1: **Define reproduction. Give its types.**

Ans: **Reproduction:**

Reproduction is defined as the production of individuals of the same species i.e. the next generation of species.

Types of Reproduction:

Reproduction has two types.

- *Asexual Reproduction.*
- *Sexual Reproduction.*

Q2: **What is difference between Sexual and Asexual Reproduction?**

Ans: *The difference between Sexual and Asexual Reproduction is:*

Sexual Reproduction	Asexual Reproduction
<i>Sexual reproduction involves the joining of male and female sex cells i.e. gametes.</i>	<i>Asexual reproduction means simple cell division that produces an exact duplicate of an organism.</i>

Q3: **Write down two advantages of the process of reproduction.**

Ans: *The advantages of the process of reproduction are:*

- *It ensures that the genetic material of one generation is transmitted to the next.*
- *It is essential for continuation of species.*

Q4: **How binary fission take place in bacteria?**

Ans: In bacteria the DNA is duplicated and so two copies of DNA are formed. The two copies move towards the opposite poles of cell. The cell membrane invaginates in center and divides the cytoplasm into two. New cell wall is deposited between two cross membranes.

This diagram is just for understanding.

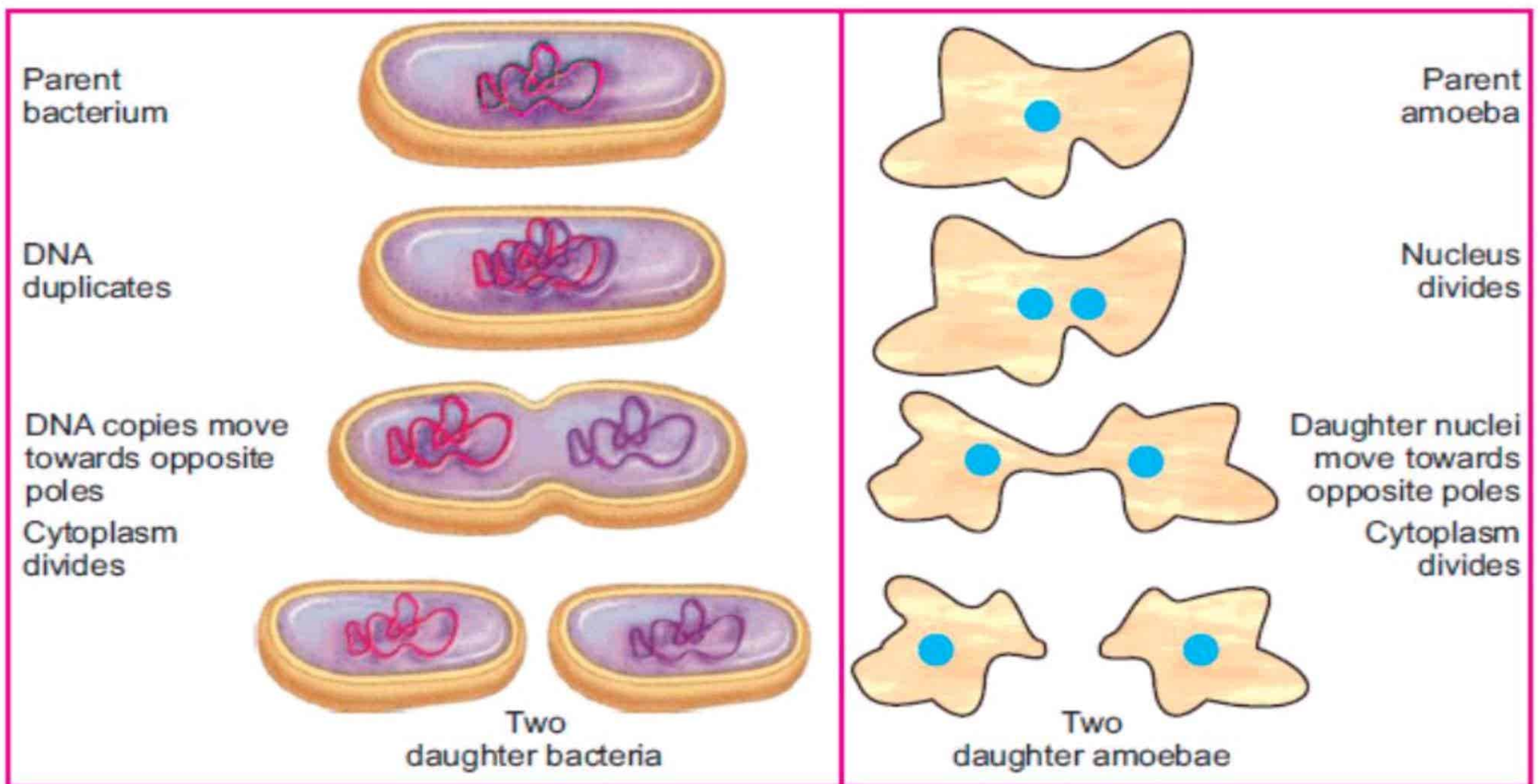


Figure : Binary fission in a bacterium (left) and in an Amoeba (right)

Q5: **What is the difference between regeneration and binary fission?**

Ans: The difference between regeneration and binary fission is:

Regeneration	Binary fission
<ul style="list-style-type: none"> ➤ Regeneration is the process in which an organism can regenerate its body parts ➤ For example, sea star can regenerate its lost arm. 	<ul style="list-style-type: none"> ➤ Binary fission means "division into two". It is the simplest and most common method of asexual reproduction. It occurs in prokaryotes (bacteria). Many unicellular eukaryotes. ➤ For example, protozoa and some invertebrates.

Q6: **How does binary fission take place in unicellular eukaryotes?**

Ans: During binary fission in, unicellular eukaryotes, the nucleus of parent organism divided into two (by mitosis). It is followed by the division of cytoplasm. So, two daughter cells of almost equal size are formed. Daughter cells grow in size and then divide again.

Q7: **Define multiple fission and give an example.**

Ans: **Multiple fission:**

The kind of fission in which a number of daughter cells are formed a single parent at the same time, called multiple fission.

Example:

- Some unicellular organism
- "Amoeba" is produced by multiple fission.

Q8: **How binary fission take place in invertebrates?**

Give example.

Ans: Some invertebrates also reproduce sexually through binary fission. During this reproduction, body is cut into two halves (Fission and the missing body parts are regenerated in both, halves. This type of asexual production is common in planarian and many echinoderms.

Q9: **Define fragmentation. Give an example.**

Ans: **Fragmentation:**

This diagram is just for understanding.

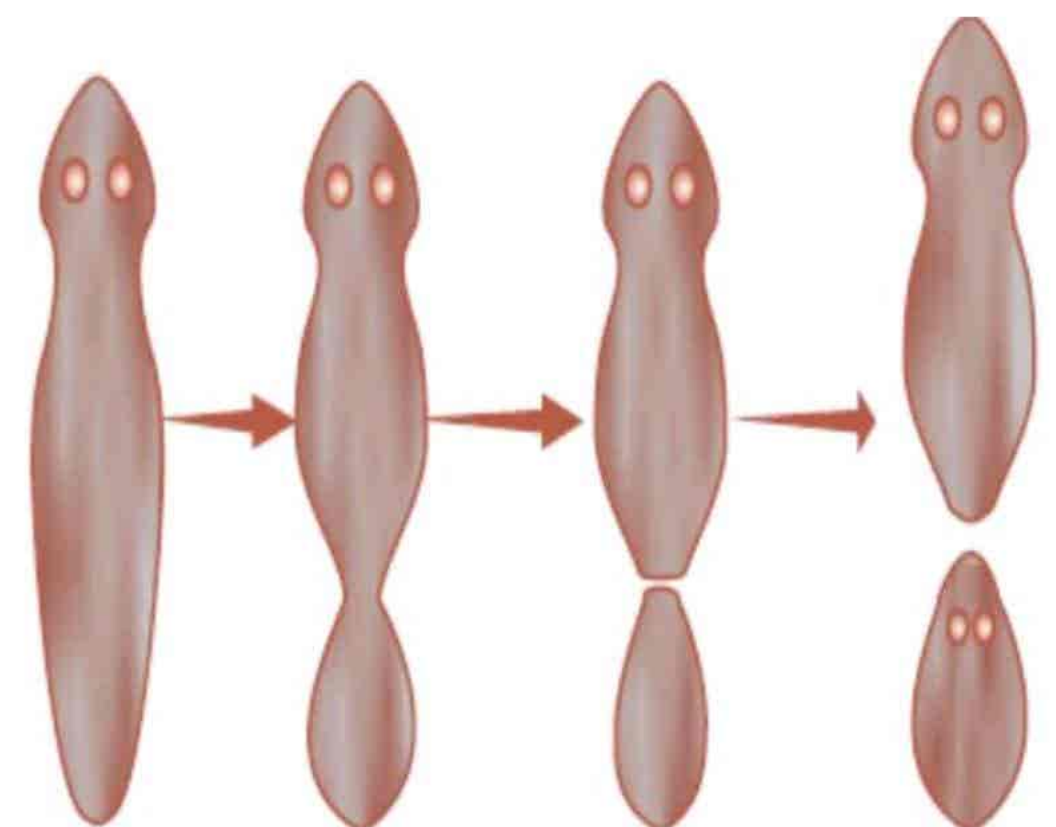


Figure Binary fission in a planarian

As certain worms grow to full size, they spontaneously break up into 8 or 9 pieces and the process repeated. If a planarian breaks into many pieces instead of two, it will also be called as fragmentation.

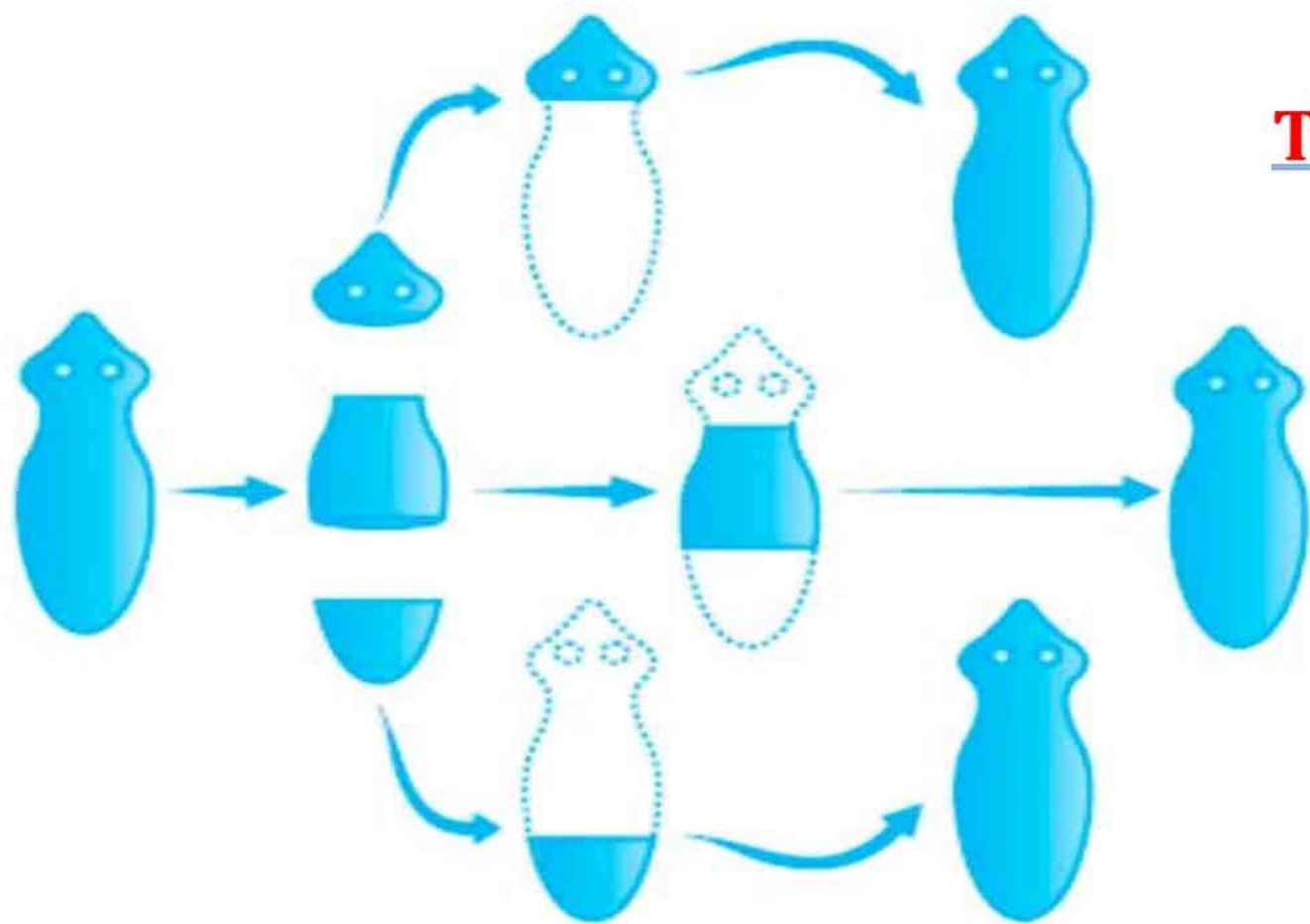


Figure : Fragmentation in a planarian

This diagram is just for understanding.

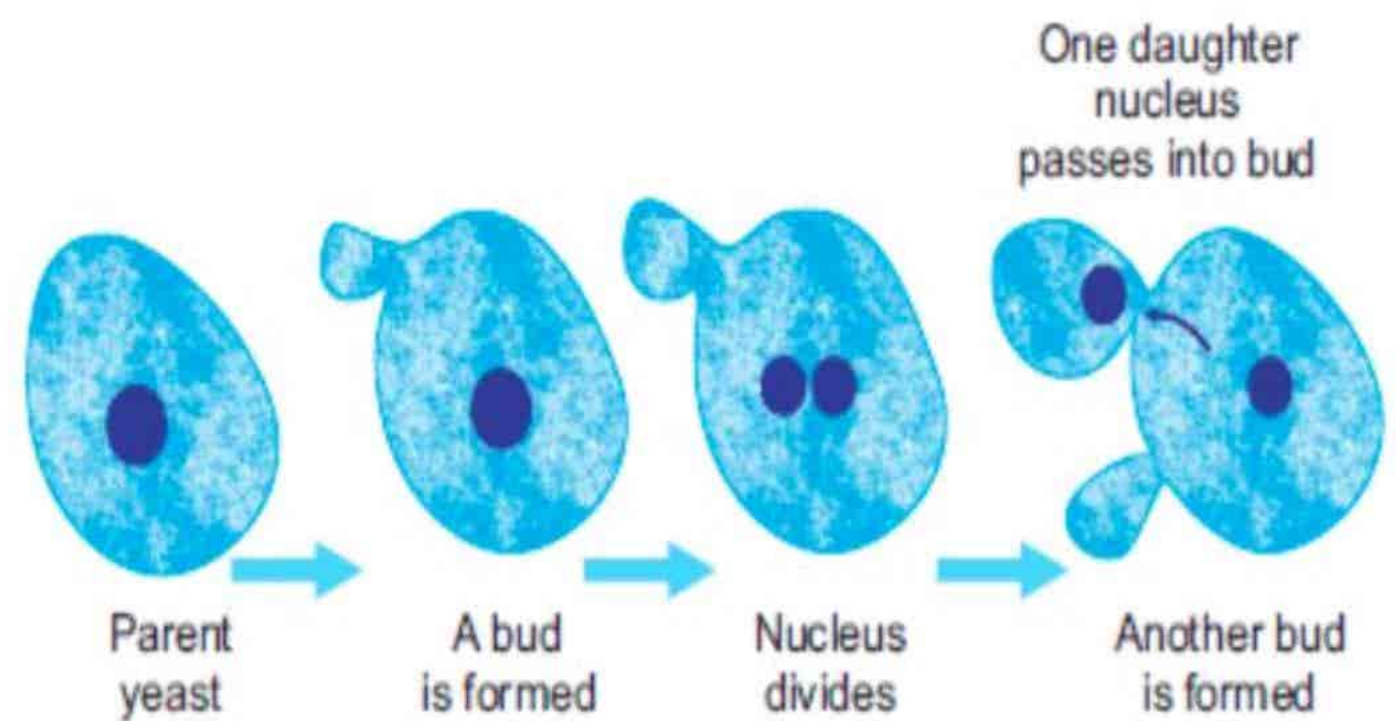


Figure : Budding in yeast

Q10: **What is budding? Give example.**

Ans: **Budding:**

It is a type of asexual wall reproduction a bud develops as a small outgrowth on parent body.

Example:

- Budding in hydra.
- Budding in corals.

Q11: **How Budding occurs in corals?**

Ans: Animals such as sponge's hydra and corals also reproduce by means of budding. In then a small bud is formed on the side of the body by mitosis. This bud enlarges by the formation of more cells. It then detaches from the parent body and grows into new organism.

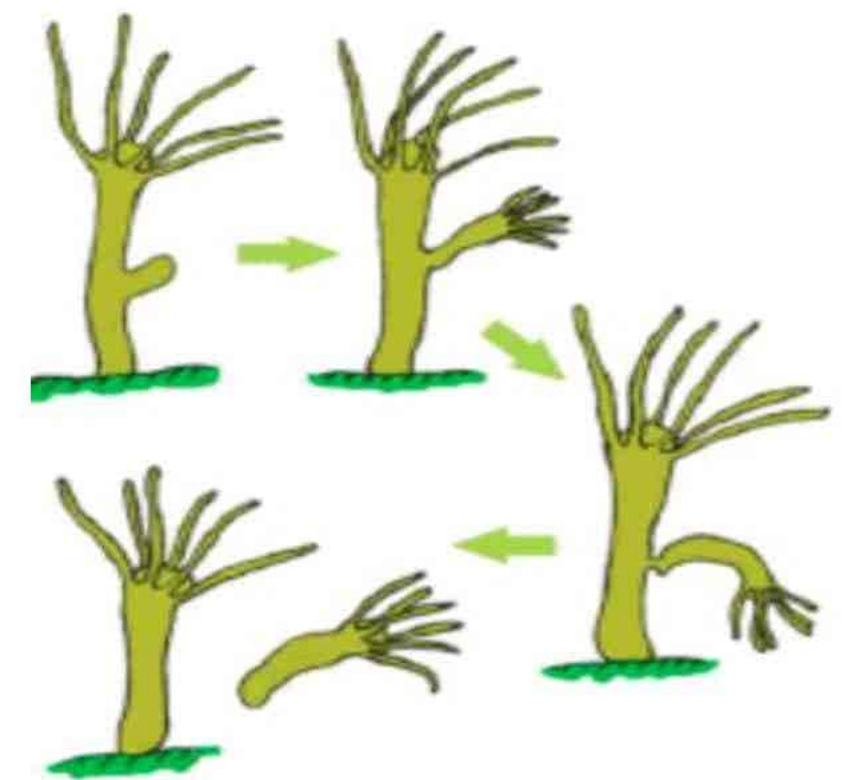


Figure : Budding in Hydra

Q12: **What are endospores?**

Ans: **Endospores:**

The spores formed inside the bacterial cells are called endospores.

Q13: **Describe the process of spore formation in 'Rhizopus'.**

Ans: When Rhizopus reaches reproductive age, its body cell form thick walled spore sacs called sporangia where spores are produced.

Q14: **Write the process of spore formation in sporangium.**

Ans: It is generally seen in most fungi (e.g Rhizopus). When Rhizopus reaches reproductive age, its body cells form thick walled spore sacs called sporangia. Inside each sporangium; a cell divides many times and forms many daughter cells called spores.

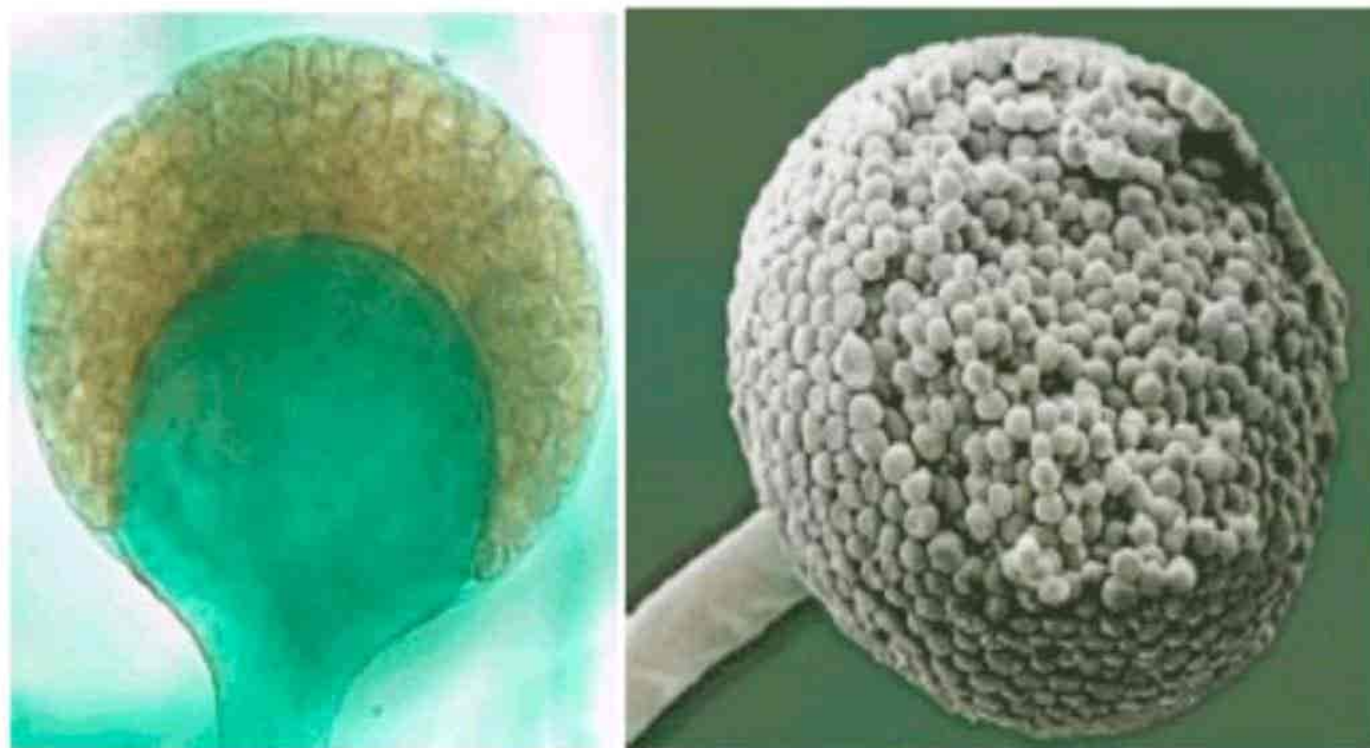


Figure : Spore formation in Rhizopus; Mature sporangium (left), sporangium bursts (right)

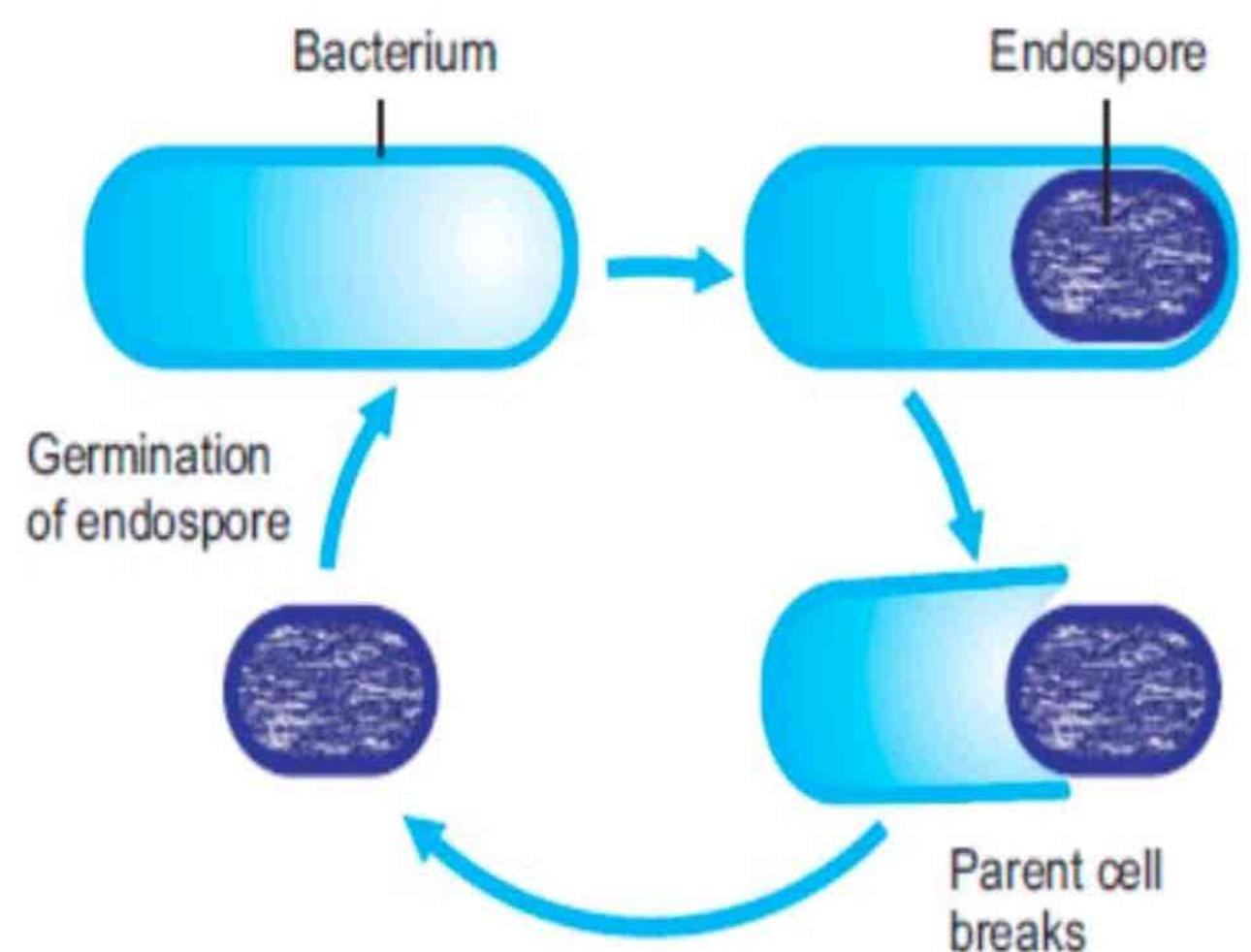


Figure : Spore formation in a bacterium

Q15: **Why the spores of bacteria are called Endospores?**

Ans: Under unfavorable conditions, some species of bacteria reproduce by forming spores, e.g. Clostridium and Bacillus species. The bacterial spores are also thick walled. They are formed inside bacterial cells, so are called endospores.

Q16: **Define parthenogenesis. Explain in honey bees.**

Ans: It is a process in which an unfertilized egg develops into new offspring. In honey bees. Many eggs remain unfertilized and develop into haploid males (drones) by parthenogenesis. At the same time some eggs are fertilized by the male bees and these develop into diploid females (new queen and worker bees).

Q17: **What is the difference between Cloning and Tissue Culture?**

Ans: The difference between Cloning and Tissue Culture is:

Cloning	pakcity.org	Tissue culture
It is latest method of vegetative propagation in this method identical offspring's are produced from a single parent using its vegetative tissue or cell.		It is the technique applied on cloning. Tissues are taken from any part and put into a suitable nutrient medium. The tissues start mitosis and produces masses of cell called calluses. Which is grown under hormonal control.

Q18: **Define crossing over.**

Ans: The non-sister chromatids of homologous chromosomes exchange their segments and the phenomenon is known as crossing over.

Q19: **Define calluses.**

Ans: **Calluses:**

During tissue culture the tissue starts mitosis and produce masses of cells called calluses.

Q20: **What is meant by vegetative propagation of plants?**

Ans: When vegetative parts of plants i.e. roots, stems or leaves give rise to new plant the process is called vegetative propagation. It occurs naturally, and can also be brought about artificially.

Q21: **Write two advantages of vegetative propagation.**

Ans: The advantages of vegetative propagation are:

- There is no need of any mechanism of pollination.
- It helps to increase number of plants at a rapid rate.

Q22: **Write disadvantages of vegetative propagation.**

Ans: The plants do not have genetic variations specific diseases can attack and this can result in the destruction of an entire crop.

Q23: **Write down three methods for vegetative reproduction.**

Ans: Methods for vegetating reproduction are:

- Cutting
- Budding
- Grafting

This diagram is just for understanding.

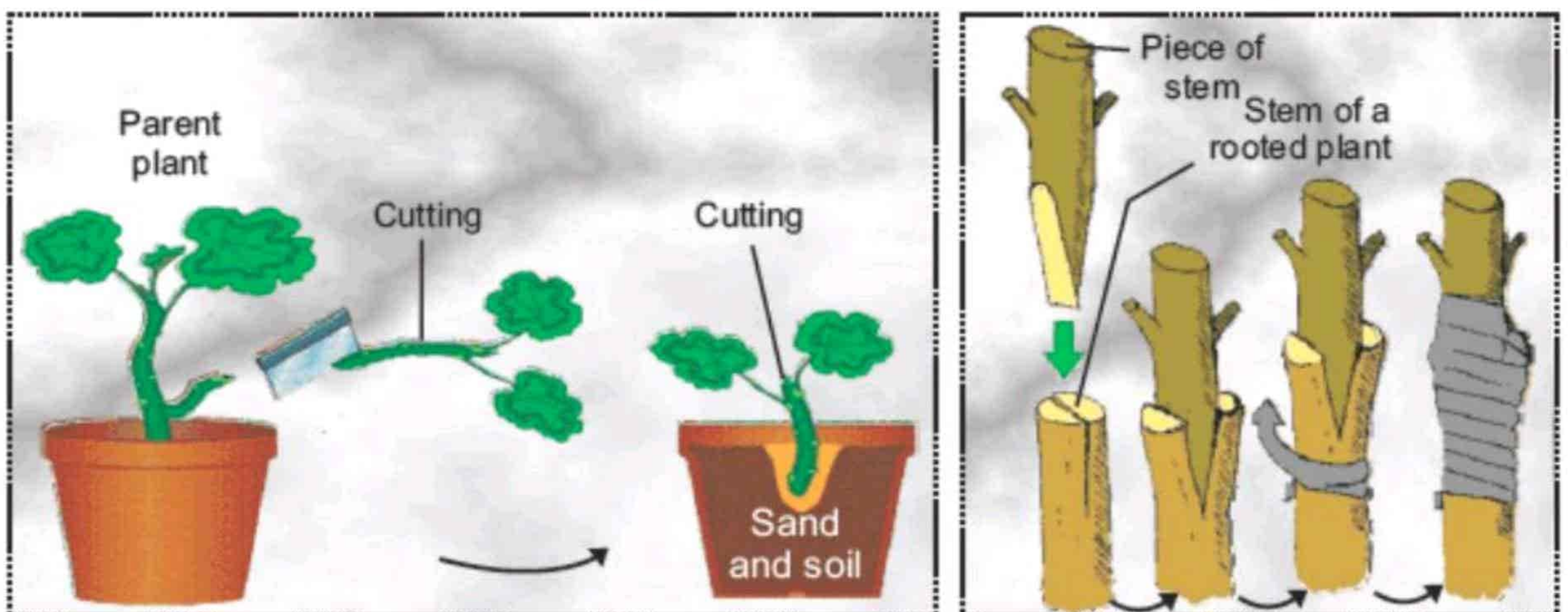


Figure Artificial vegetative propagation: Cutting (left) and Grafting (right)

Q24: **What is the difference between cutting and grafting?**

Ans: The difference between cutting and grafting is:

Cutting	Grafting
<ul style="list-style-type: none"> ➤ In this method cutting may be taken mainly from stem and root of parent plant. ➤ These cuttings must have meristematic region from which growth can occur e.g. roses, ivy etc. 	<ul style="list-style-type: none"> ➤ In this method a piece of stem is cut from plant and is attached to another plant. ➤ After a while, the vascular bundle of stem piece and host plant connected and grow together e.g. peach trees, in roses etc.

Q25: **How vegetative propagation take place by leaf?**

Ans: Vegetative propagation by leaves is not common and is seen in plants such as Bryophyllum (pather chut). This plant has fleshy leaves and adventitious buds are present at margins of leaves. When leaf falls on ground, the buds grow into new plants.

Q26: **What is the importance of seed dormancy?**

Ans: Most seeds go through a period, during which there is no growth. This period is called dormancy of seed.

Dormant seeds are ripe seeds but do not germinate. Under favourable conditions, the seed break dormancy and begin to germinate.

Q27: **Write the names of four methods of natural vegetative propagation.**

Ans: The names of methods of natural vegetative propagation are:

- Suckers
- Rhizomes
- Stem tubers
- Corms
- Vegetative propagation by leaves.
- Bulbs

Q28: **What are corms?**

Ans: Corms are short and swollen underground stems containing stored food. Buds are present at the top of corms. From a bud shoot grows and form a new plant. Dasheen and Garlic reproduced by corms.

This diagram is just for understanding.

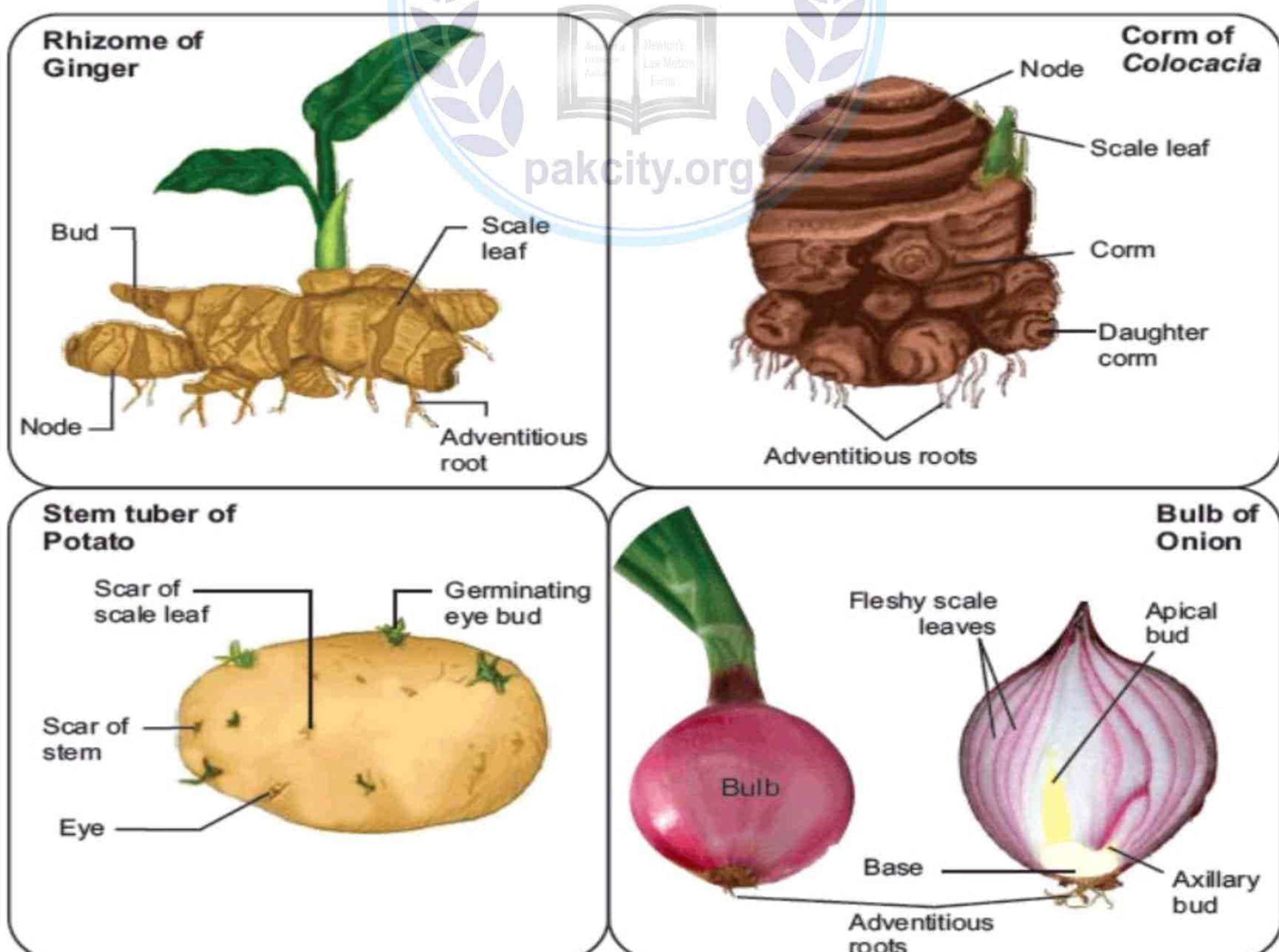


Figure Some types of natural vegetative propagation

Q29: **What is difference between bulbs and corms.**

Ans: The difference between bulbs and corms is:

Bulbs	Corms
Bulbs are the underground vertical shoots having new plants by vegetative propagation.	Corms are short underground stems having buds at the top and give to modified leaves.

Q30: **How reproduction of plants takes place by Bulbs? Give any two examples.**

Ans: Bulbs are short underground stem surrounded by thick, fleshy leaves that. Contain stored food. Adventitious roots emerge under the base of bulbs while shoot emerges on the top of base. Tulip, onions and lilies are reproduced by bulbs.

Q31: **Write names of plants which are reproduced by bulbs and corms.**

Ans: The names of plants which are reproduced by Bulbs are:

- Tulips
- Onions
- Lilies

The names of plants which are reproduced by Corms are:

- Dasheen
- Garlic

Q32: **How plants reproduce by suckers? Give example.**

Ans: Suckers are lateral stems close to ground level. A sucker grows underground from some distance and then turns up producing the new plant.

Example:

- Mint
- chrysanthemum

Q33: **Define stem tuber.**

Ans: **Stem tuber:**

Stem tuber are the enlarged portions of an, underground stem. There are aggregations of tiny buds in the form of "eyes". Each bud develops into shoot that grow upward and also produce roots.

Example:

- Potatoes
- Yams

Q34: **What is meant by alternation?**

Ans: The phenomenon in which two different generation alternates during life cycle is known as alternation of generation.

Q35: **What is meant by double fertilization?**

Ans: In flowering plants one sperm fuses with egg to form zygote and the second sperm fuses with fusion nuclei to form endosperm tissue. This process of fertilization involves two fusions it is called double fertilization.



Q36: **What is Calyx?**

Ans: Calyx is the outermost whorl. It is usually green in colour. Its individual units are called sepals. Sepals protect the inner whorls at bud stage.

Q37: **Write the name of Reproductive whorls of the flower.**

Ans: The name of Reproductive whorls of the flower is:

- Androecium
- Gynoecium

Q38: **Define Pollen Tube.**

Ans: **Pollen Tube:**

When pollen grains mature, they are transferred to stigma. It is called pollination. On reaching the stigma, the tube nucleus of pollen grain constructs a pollen tube. The Pollen tube contains a tube nucleus and two sperms.

Q39: **Difference between sporophyte and gametophyte generations.**

Ans: In the life cycle of plants two different generations alternate with each other. One generation is diploid and produces spores. It is called sporophyte generation. The other generation is haploid and produces gametes. It is called gametophyte generation.

Q40: **What is flower in botany?**

Ans: The flower is actually a condensed shoot with the nodes present very close to each other. The different parts of the flower are attached to the nodes. All the structures present at one node are collectively called the whorl.

Q41: **Differentiate between endosperm and zygote.**

Ans: The difference between endosperm and zygote is:

Endosperm	Zygote
When sperm fuses with diploid fusion nucleus and forms a triploid is called endosperm	When one sperm fuses with one egg it forms a zygote.

Q42: **What is gynoecium?**

Ans: Fourth whorl, gynoecium is the female reproductive part of flower. Its units are called carpels. Each carpel is made up of the basal ovary, middle style and upper stigma. Inside ovary there is one to many ovals.

Q43: **What is meant by gametogenesis?**

Ans: The formation of gametes is called gametogenesis. In this process diploid (2N) gamete mother cells undergo meiosis and form haploid (1N) gametes.

Q44: **What is androecium and give its units?**

Ans: **Androecium:**

Third whorl i.e. androecium is the male reproductive part of the flower. Its units are called stamens.

Q45: **Write the names of different parts of mustard flower.**

Ans: The names of different parts of mustard flower are:

1. Sepal
2. Petal
3. Anther
4. Filament
5. Stigma
6. Style
7. Ovary
8. Ovule

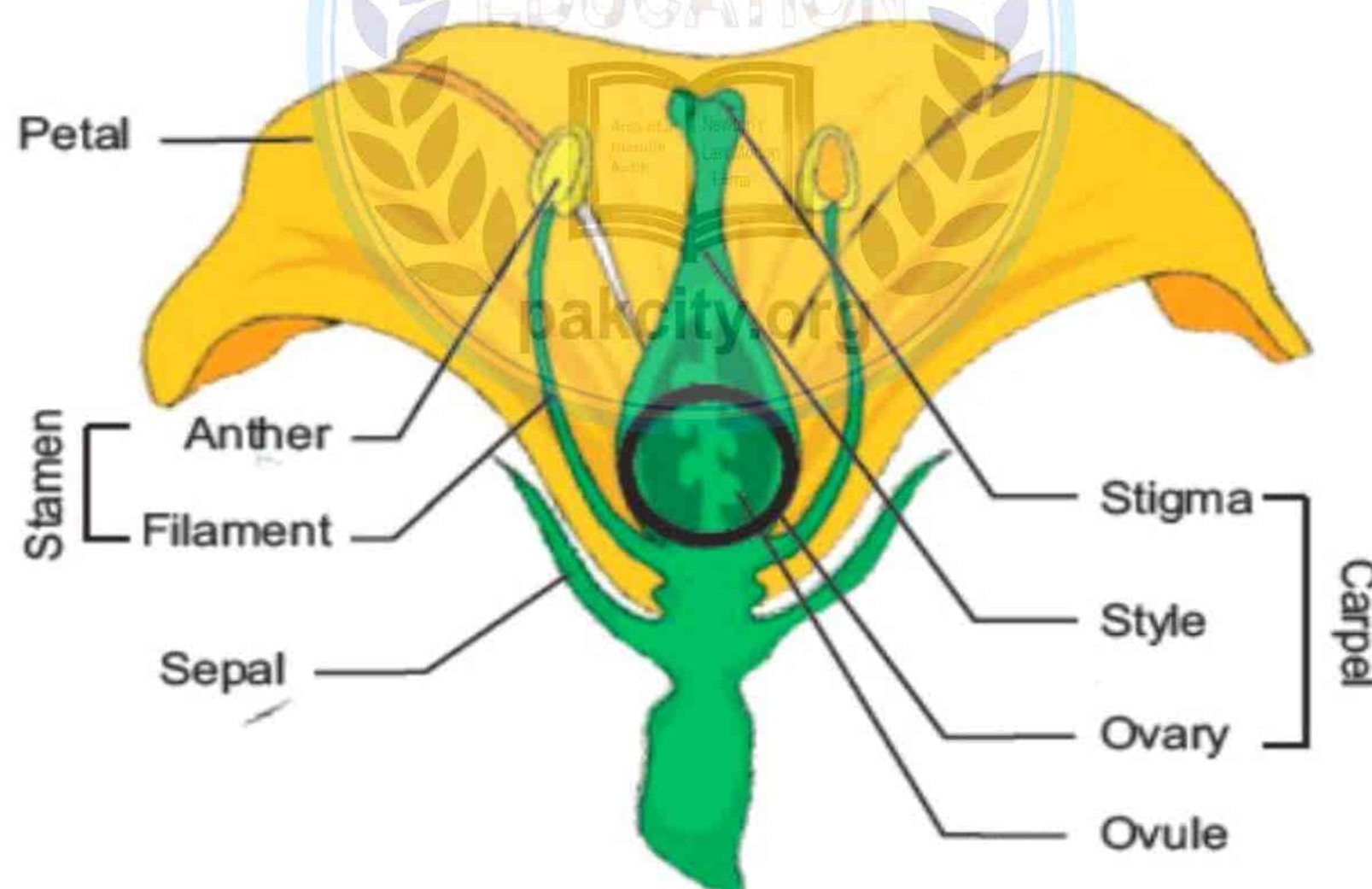


Figure : Structure of a flower

Q46: **Define pollination. Give two examples of air pollinated flowers.**

Ans: **Pollination:**

Pollination is defined as the transfer of pollen grains from flower's anther to stigma.

Example:

Of wind pollinated flowers are grasses, hazel, willow, corn etc.

Q47: **Define two types of pollination.**

Ans: **Pollination:**

Pollination is defined as the transfer of pollen grain from flower's anther to stigma. Two types of pollination are recognized.

Self-Pollination:

It is defined as the transfer of pollen grains from anther to stigma of same flower or other flower of same plant.

Cross pollination:

It is transfer of pollen grains from the flower on one plant to the flower on other plant of same species. It is brought about by various agencies like wind, water, bees, birds, bats and other animals including man.

This diagram is just for understanding.

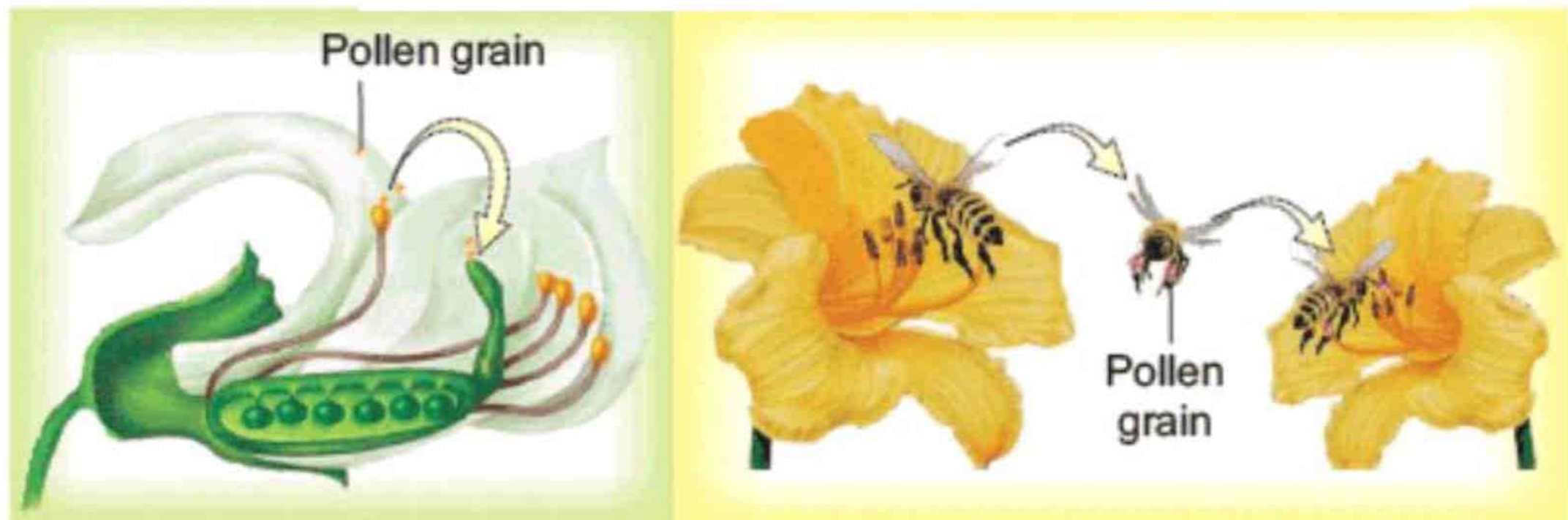


Figure Self pollination (left) and cross pollination (right)

Q48: **What is Seed Coat? Write its function.**

Ans: Outer covering of a seed is called seed coat.

Functioning:

It protects the embryo from mechanical injury and from drying out.

Q49: **Write the name of two important parts of angiosperm seed.**

Ans: Angiosperm seeds consist of three parts:

- The embryo formed from zygote.
- The endosperm tissue formed from endosperm nucleus.
- The seed coat which develops from the wall of ovule.

Q50: **What is embryo?**

Ans: Embryo is the developing human offspring inside the womb.

Q51: **What is Endosperm tissue?**

Ans: Endosperm tissue formed from endosperm nucleus. In angiosperms, the stored food is derived from the endosperm tissue. This tissue is rich in oil or starch and protein. In many seeds, the food of the endosperm is absorbed and stored by cotyledons.

Q52: **Differentiate between epigeal and hypogeal germination.**

Ans: The difference between epigeal and hypogeal germination is:



Epigeal germination	Hypogeal germination
<ul style="list-style-type: none"> ➤ In the hypocotyls elongates and forms a hook, pulling the cotyledons above ground. ➤ Example: Beans, cotton, and papaya germination. 	<ul style="list-style-type: none"> ➤ In the epicotyls elongates and forms the hook. In this type of germination, the cotyledons stay under ground. ➤ Example: Pea, maize and coconut germination

This diagram is just for understanding.

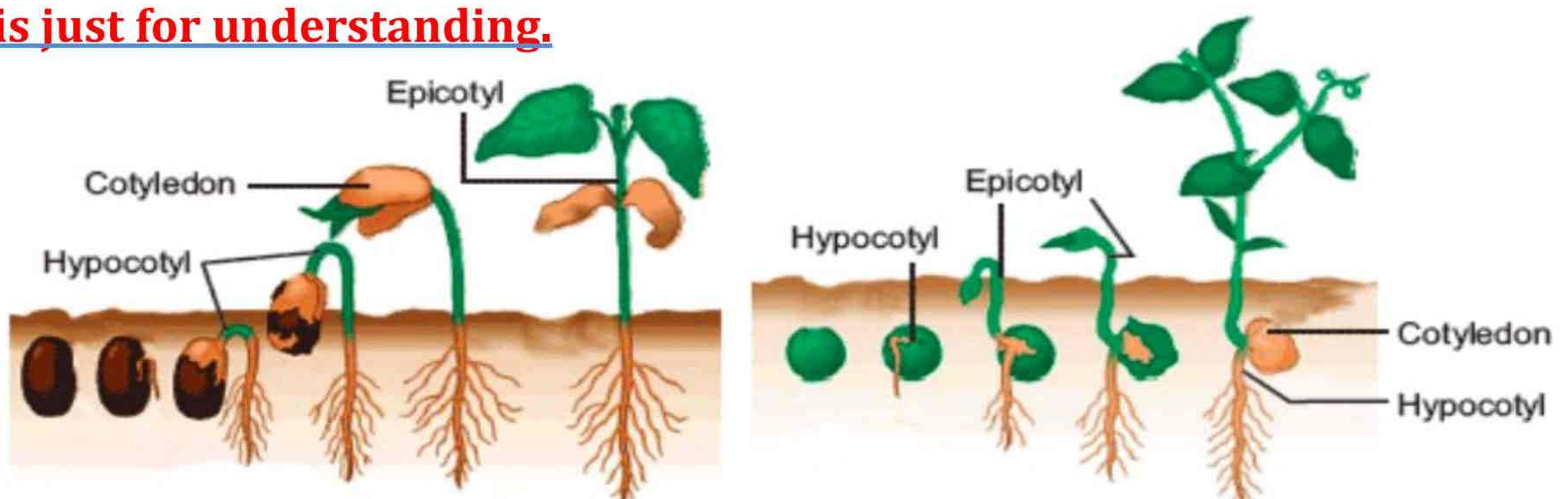


Figure Types of seed germination; epigeal (left) and hypogeal (right)

Q53: What is germination?

Ans: The process by which seed embryo develop into a seedling.

Q54: Write two conditions necessary for seed germination.

Ans: Following Conditions necessary for seed germination:

Oxygen:

Oxygen is very necessary for the respiration in the cells of embryo.

Temperature:

Seeds differ greatly in their temperature requirements for germination. The optimum temperature for the germination of seed of most plants ranged from 25-30°C.

Q55: What is meant by spermatogenesis and oogenesis?

Ans: The production of sperms in testes is called spermatogenesis. While the formation of egg cell is called oogenesis.

Q56: How spermatids change into sperms?

Ans: The spermatids are non-motile and many changes occur in them to convert them into motile cells. Their nucleus shrinks and some structure are formed e.g. a corner called acrosome, a tail and a mitochondrial ring. After these changes the spermatids are called sperms.

Q57: What do you know about micropyle?

Ans: At one end of hilum, there is micropyle. This is the same opening through which the pollen tube entered ovule. Seed uses it for the absorption of water.

Q58: Define follicles. What is present it's inside?

Ans: Like most animals, female rabbits have pair of ovaries the outer region of ovary produced egg cells. A cluster of specialized cells called follicle surrounds and nourishes each e.g. cell. From ovaries, egg cells are released in fallopian tubes.

Q59: Define fertilization.

Ans: Fertilization is the fusion of male and female gametes to form a zygote.

Q60: What is meant by Internal fertilization?

Ans: Internal fertilization:

In this, egg cells are fertilized within the reproductive track. It occurs in reptiles, birds and mammals.

Q61: What is meant by External fertilization?

Ans: External fertilization:

In this, egg cells are fertilized outside of body. It occurs mostly in aquatic environment.

Q62: Define placenta.

Ans: A connection, called placenta, is established between embryo and uterus wall.

Q63: Write the names of parts of male reproductive system of rabbit.

Ans: The male reproductive system of rabbit consists of a pair of testes that produce sperms, the associated ducts that transport sperm to external genitals and glands that add secretions to sperms.

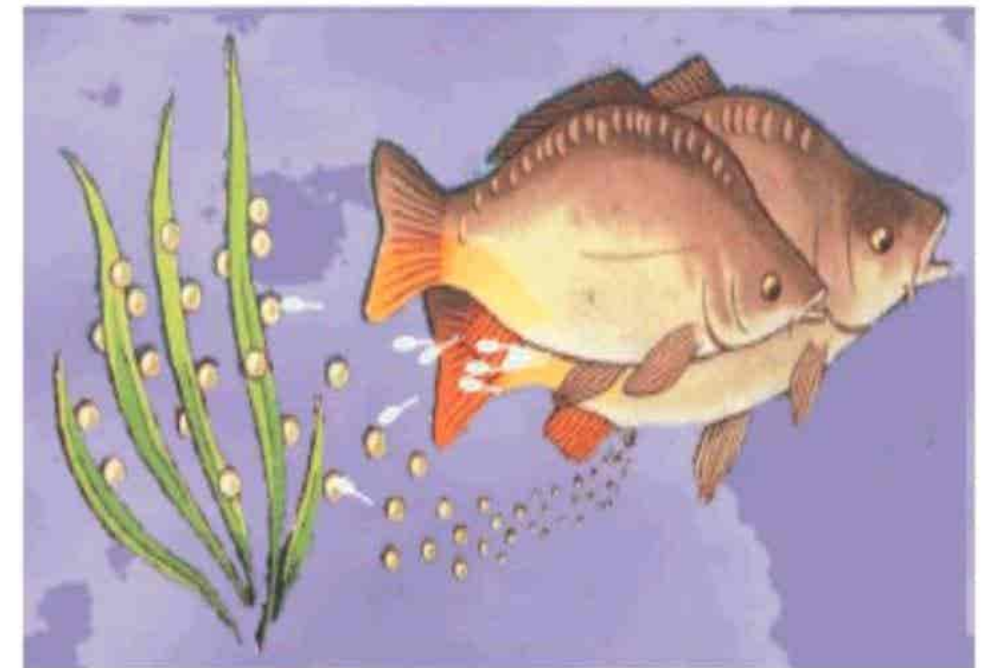
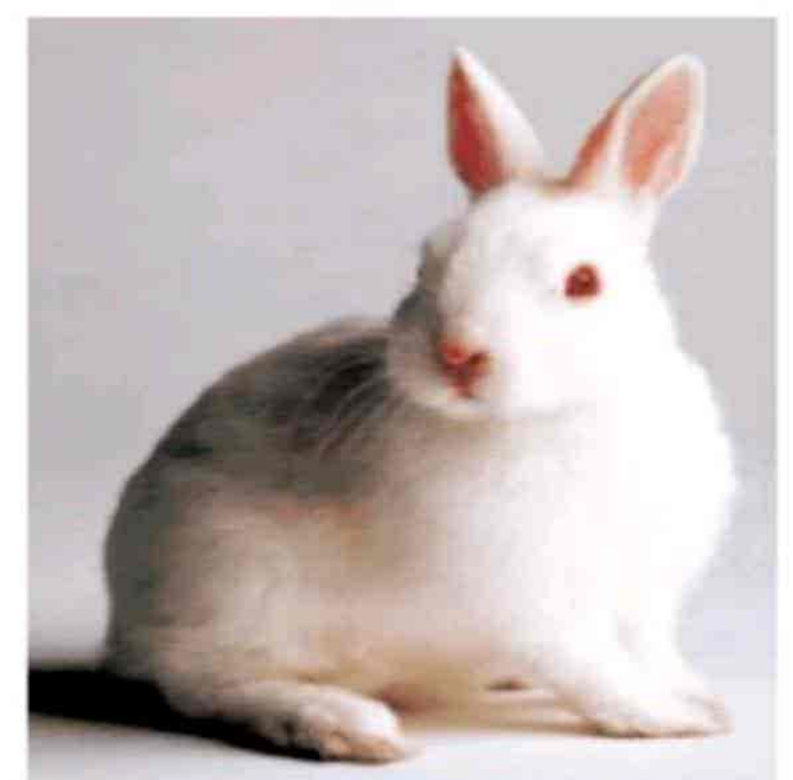
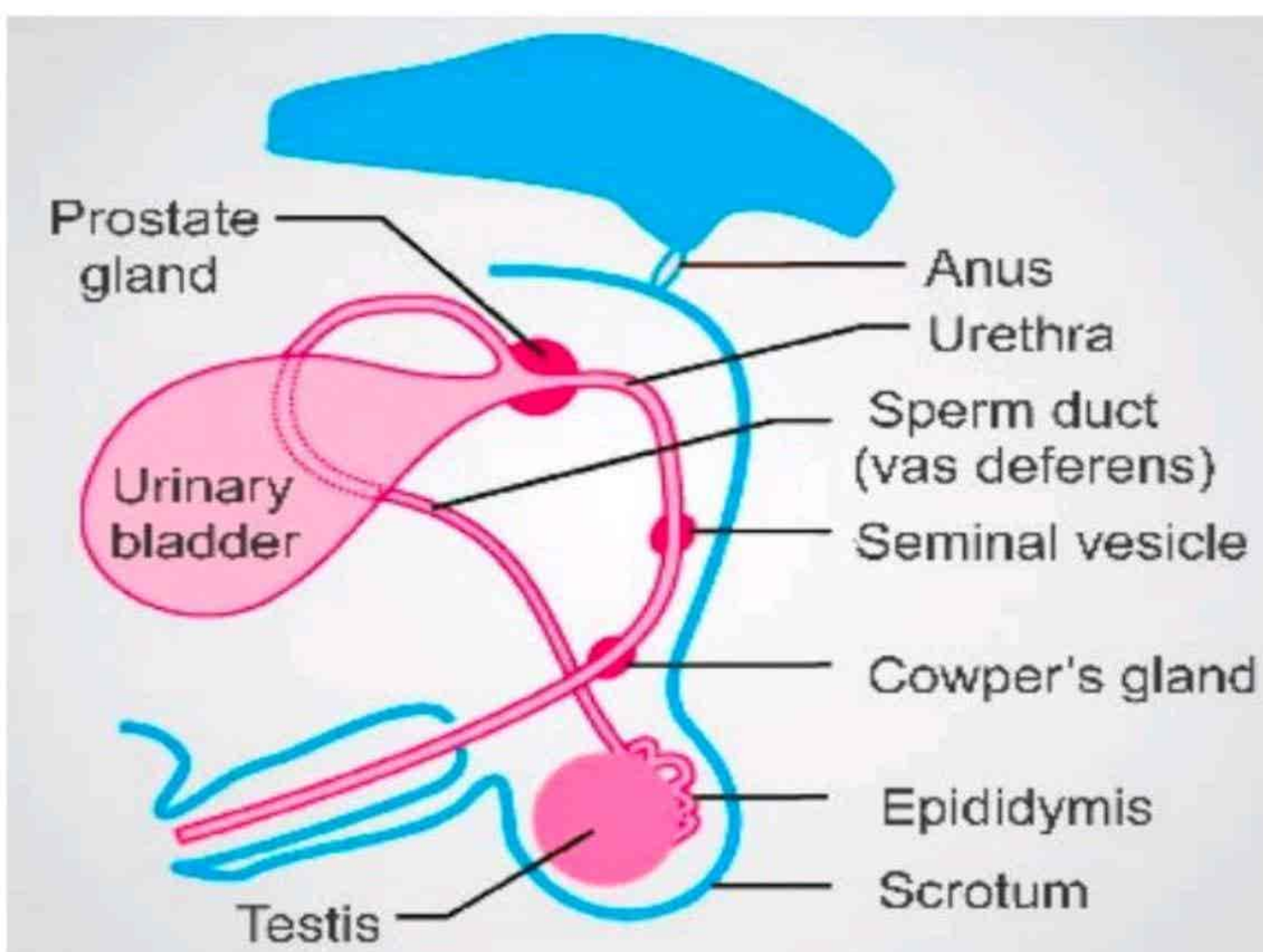


Figure : External fertilization in fish



Rabbits reingest their own pellet-like faeces to digest their food further and extract sufficient nutrients.

Q64: Differentiate between Prostate glands and Cowper's glands.

Ans: The difference between prostate glands and Cowper's glands is:

Prostate glands	Cowper's glands
Prostate gland produces a secretion that neutralizer the acidity of the fluid.	Cowper's glands produce secretions that lubricate the ducts.

Q65: What is difference between micropyle and hilum.

Ans: The difference between micropyle and hilum is:

Micropyle	Hilum
At one end of hilum, there is micropyle. This is the same opening through which pollen tube entered ovule.	There is a scar on seed coat called hilum.

Q66: How fertilization takes place in rabbit.

Ans: Rabbits can breed throughout the year but male are commonly sterile during summer months. Male rabbit, deposit its sperm in the vagina (birth canal) of female. Sperms swim through cervix and uterus to fallopian tube to uterus, where they fertilize the egg cells, released from ovary.

Q67: From which seed and fruit develop?

Ans: Seed develop from ovule and fruit develop from ovary.

Q68: How does yeast reproduce asexually?

Ans: In case of yeast, a small bud is formed on one side of the cell. The nucleus of the cell divides and one of the daughter nuclei is passed into the bud. Parent cell many form more than one bud at a time. Each bud enlarges and develops the characteristics of parent organism. The bud many separate from the parent body.

Q69: Write down two main causes for spread of AIDS.

Ans: It spreads through transfer of body fluids such as blood and semen. Its main causes are unprotected sexual activities, use of infected needles or transfusion of infected blood.

Q70: Write down two main objectives of National AIDS Control Program.

Ans: Two main objectives of National AIDS Control Program are:

- Change Public attitude for safe sexual activities.
- Create demand for information of HIV and Aids.

Q71: What are STD? Write one STD name.

Ans: Sexually transmitted diseases:

Sexually transmitted diseases (STDs) are defined as the diseases that are transmitted through sexual act.

The name of one STD is:

AIDS is sexually transmitted diseases

Q72: Why do gardeners use the methods of cutting and grafting?

Ans: Gardeners and farmers use artificial methods of vegetative propagation to increase the stock of a plant.

★ Long Questions ★

- Q.1: Explain spermatogenesis and oogenesis in animals. (v.imp)
- Q.2: Describe the structure of Female Reproductive Part of Flower. Diagram is necessary.
- Q.3: Explain external and internal fertilization with examples.
- Q.4: Explain male reproductive system in Rabbit. OR Explain female reproductive system in Rabbit.
- Q.5: Why reproduction is necessary for living organism. Describe any three methods of a sexual reproduction.
- Q.6: Describe process of Binary Fission in Bacteria. (v.imp)
- Q.7: What do you know about Multiple Fission?
- Q.8: Explain Budding with example. (v.imp)
- Q.9: By how many ways natural vegetative propagation occurs? Explain these. (v.imp)
- Q.10: Discuss two types of artificial vegetative propagation.
- Q.11: Describe the structure of Flower.
- Q.12: Explain sexual reproduction in flowering plants. Draw life cycle of flowering plant.
- Q.13: What is Pollination? Discuss its kinds. OR Compare the insect and wind pollinated flowers.
- Q.14: Write down about the development and structure of seed in plants. (v.imp)
- Q.15: What is germination of seed? Explain its types with examples.
- Q.16: Explain conditions necessary for Seed Germination.
- Q.17: Differentiate between Epigeal and Hypogeal Germination with labeled diagram.
- Q.18: Write two advantages and two disadvantages of vegetative propagation in plants.
- Q.19: Write down a note on alternation of generation in the life cycle of Plants

