**TOPIC: REPRODUCTION IN ORGANISMS AND SEXUAL REPRODUCTION IN FLOWERING PLANTS**

**UNIT NO: B-11**

1. Read the following statements.

i. All the individuals of a species have exactly the same life span

ii. Smaller organisms always have shorter life span and vice versa.

iii. Life span of an organism is the time period from birth to its natural death.

iv. No organism may have a life span of several hundred years.

v. Life spans of organisms are correlated with their size.

vi. The Crows and Parrot are same sizes and life spans.

vii. The Peepal tree life span is much longer than Mango tree.

viii. No individual is immortal.

In the above statements, the correct and wrong statements are

1. First four are correct statements, next four are wrong statements.

2. i, ii, vi, viii are correct statements, remaining are wrong statements.

3. iii, vii are correct statements, remaining are wrong statements

4. i, iii, v, vii are correct statements, remaining are wrong statements

1. Life spans of some organisms are given below. Identify the organisms based on their life span.

50 to 70 yrs, 22 yrs, 1 to 2 weeks, 15yrs, 22 yrs,140 yrs, 60 yrs, 40 to 50 yrs, 2 weeks, 100 to 150 yrs, 1 to 4 yrs, 25years, 4 months, 200 to 300 yrs.

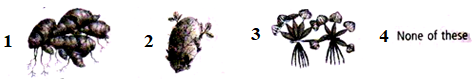
1. Elephant- 50 to 70 yrs, Dog- 22yrs, Butterfly-1 to 2 weeks, Crow -15 yrs, Cow- 22 yrs, Parrot-140 yrs, Crocodile - 40 to 50 yrs, Horse – 60 yrs, Fruit fly- 2 weeks ,Tortoise-100 to 150 yrs, Rose plant- 1 to 4 years, Banana tree-25 yrs, Rice plants- 4 months, Banyan tree- 200 to 300 yrs.

2. Elephant - 50 to 70 yrs, Dog- 22 yrs, Butterfly- 1 to 2 weeks, Crow – 22 yrs, Cow -15 yrs, Parrot- 140 yrs, Crocodile – 60 yrs, Horse - 40 to 50 yrs, Fruit fly - 2 weeks, Tortoise -100 to 150 yrs, Rose plant -1 to 4 years, Banana tree- 25 years, Rice plants- 4 months, Banyan tree- 200 to 300yrs.

3. Elephant- 40 to 50 yrs, Dog- 22 yrs, Butterfly-1 to 2 weeks, Crow - 15 yrs, Cow -22 yrs Parrot -140 yrs, Crocodile – 60 yrs, Horse - 50 to 70 yrs, Fruit fly - 2 weeks, Tortoise – 100 to150 yrs, Rose Plant- 1 to 4 years, Banana tree- 25 years, Rice plants - 4 months, Banyan tree - 200 to 300 yrs.

4. Elephant - 50 to 70 yrs, Dog-22 yrs, Butterfly- 1 to 2 weeks, Crow -15 yrs, Cow – 22 - yrs, Parrot – 140 yrs, Crocodile – 60 yrs, Horse- 40 to 50 yrs, Fruit fly- 2 weeks, Tortoise-100 to 150 yrs, Rose plant- 1 to 4 years, Banana tree- 25 years, Rice plants- 4months, Banyan tree - 200 to 300 yrs.

1. In which of the following plants, vegetative propagation occurs by adventitious buds?



1. During binary fission in *Amoeba*, which of the following organelles is duplicated?

1. Plasma membrane 2. Nucleus 3. Contractile vacuole 4. All of these

1. In the following, the correct statements about reproduction are

i. Reproduction is a biological process in which an organism gives rise to young ones similar to itself

ii. The offspring grow, mature and in turn produce new offsprings.

iii. There is a cycle of death, birth and growth.

iv. Reproduction enables the continuity of the species generation after generation.

v. In reproduction one or two organisms are participated.

vi. In sexual reproduction, two parents are involved and syngamy occurs.

vii. In asexual, one or two parents are involved, syngamy occurs.

viii. Asexual reproduction is common among single celled organisms only.

1. i, ii, iii, v, vi, vi 2. i, ii, iv, v, vii 3. i, iii, iv, v, viii 4. i, ii, iv, v, vi

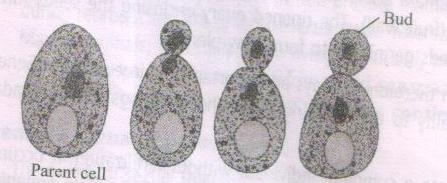
1. Single celled animals are said to be immortal because

1. They can reproduce throughout their life span

2. They grow indefinitely in size

3. They can tolerate any degree of change in temperature.

4. They continue to live as their daughter cells.

1. Refer the given figures and select the correct option

1. It is a type of parthenogenesis

2. It is a type of asexual reproduction.

3. The offspring’s can also be called as clones.

4. Both 2 and 3

1. Find the mismatched pairs

Vegetative propagules Examples

i. Tuber----------- Zinger

ii. Rhizome ------- Potato

iii. Bulbil----------- *Agave*

iv. Leaf buds------ Water hyacinth

v. Offset---------- *Bryophyllum*

1. i, ii, iii, iv. 2. i, iii, iv, v 3. i, ii, iv, v 4. i, ii, iii, v

1. Read the following statements and select the correct option.

Statement 1: Many plants are propagated vegetatively even though they bear seeds.

Statement 2: Sweet potatoes multiply vegetatively by root tubers.

1. Both the statement1and 2 are correct and statement 2 is the correct explanation of statement 1

2. Both the statements are correct but statement 2 is not the correct explanation of statement 1

3. Statement 1 is correct and statement 2 is incorrect

4. Both statement 1 and 2 are incorrect

1. Read the following statements about ‘Terror of Bengal’ and select the correct ones.

i. Terror of Bengal is the name given to Water hyacinth, an alga.

ii. *Eichhornia* was introduced in India due to its aesthetic value.

iii. *Eichhornia* drines oxygen from the water which leads to death of fishes.

iv. It is the most invasive weed, found in flowing water.

v. Within a short period it spread all over the water body due to its runner type of vegetative propagation.

vi. It cannot be easily get rid off from the water medium.

1. iii only 2. i, ii, iii 3. ii, iii, vi 4. i, iii, v

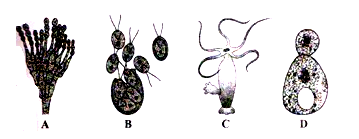
1. Match the following

|  |  |  |
| --- | --- | --- |
| Column-I (Types of asexual reproduction) | Column –II (Characters) | Column-III  (Examples) |
| i. Cell division | p. The parent cell divides into two to give rise to new individuals. | a. *Amoeba* and *Paramecium* |
| ii. Binary fission | q. Parental cell divides into two halves an each rapidly grows into an adult. | b. Protists and Monerans |
| iii. Buds | r. The parental cell divides unequally and small outgrowths are produced. | c. Yeast |
| iv. Zoospores | s. Microscopic motile structures, endogenous origin. | d. *Penicillium* |
| v. Conidia | t. Microscopic non-motile structures, exogenous origin. | e. *Chlamydomonas* |
| vi. Gemmules | u. Internal bud. | f. Sponges |

1. i-p-a, ii-q-b, iii-r-c, iv-s-e, v-t-d, vi-u-f 2. i-p-b, ii-q-a, iii-r-c, iv-s-d, v-t-e, vi-u-f

3. i-p-b, ii-q-a, iii-r-c, iv-s-e, v-t-d, vi-u-f 4. i-p-b, ii-q-a, iii-r-f, iv-s-e, v-t-d, vi-u-c

1. Refer the given figures and select the correct option.

1. C and D reproduce by budding that includes nuclear division only.

2. All of these reproduce by the sexual mode of reproduction

3. B represents multiple fission in an alga.

4. A shows spore formation in a moneran.

1. Which of the following groups is formed only of the hermaphrodite organisms?

1. Earthworm, Tape worm, Housefly, Frog 2. Earthworm, Tapeworm, Sea horse, Housefly

3. Earthworm, Leech, Sponge, Round worm 4. Earthworm, Tape worm, Leech, Sponge

1. In the following, features of sexual reproduction is/are

i. Sexual reproduction is elaborate process than the asexual reproduction.

ii. Sexual reproduction is a complex process than the asexual reproduction.

iii. Sexual reproduction is a slow process than the asexual reproduction.

iv. Offsprings produced by sexual reproduction are identical amongst themselves.

1. i, ii only 2. i and iii only 3. i and iv only 4. i, ii and iii only

1. Which of the following cannot serve as a vegetative propagule?

a. A piece of Potato tuber with eyes b. A middle piece of sugarcane internode

c. A piece of ginger rhizome d. A marginal piece of *Bryophyllum*

e. Scale leaves of Onion f. A small portion of potato tuber

g. A small portion of offset of *Pistia*

h. A small portion of rhizome of Banana with growing bud

1. b, e, f, g 2. b, c, g, h 3. b, c, d, h 4. b, e, g, h

1. It is a common method of vegetative propagation in which 20-30cm long pieces of one year old stems are cut, their lower ends are dipped in root promoting hormones and are then planted in the soil, which then develop adventitious roots. This method of vegetative propagation is performed in

1. Rose and Sugarcane 2. Lemon and Orange

3. *Begonia* and *Bryophyllum* 4. All of these

1. Sexual reproduction involves

1. Formation of the male and female gametes by the same individual

2. Formation of male and female gametes by different individuals

3. Both 1 and 2 4. None of these

1. In the following false statements are

i. All plants produce flowers in all seasons.

ii. The availability of fruits like Mango, Apple, Jackfruit are seasonal.

iii. The annual and biennial plants show clear cut vegetative, reproductive and senescent phases

iv. A few plants exhibit unusual flowering phenomenon.

v. Bamboo species flowers once in 50-100 years and then die.

vi. Strobilanthus kunthiyana flowers once in 12 years.

vii. In Neelakuranji flowering occurred in sep-oct -2006

viii. Neelakuranji flowers present in Kerala, Karnataka only.

ix. Juvenile phase followed by morphological and physiological changes prior to active reproductive behavior.

x. The reproductive phase is variable duration in different organisms.

1. i, iii, v, ix, x 2. i, iii, vi, ix, x 3. i, iii, viii, ix, x 4. i, viii

1. i. Birds living in nature lay eggs only seasonally.

ii. Birds in captivity (as in Poultry farms) can be made to lay eggs throughout the year.

iii. Oestrus cycle present in Apes, Rats, Deers, Dogs, etc.

iv. Menstrual cycle occurs in Monkeys, Humans, Cows, Sheep, Tigers etc

v. The female of placental mammals exhibit cyclical changes in the activities of ovaries and accessory ducts as well as hormones during the reproductive phase.

vi. Mammals living in natural, wild conditions are continuous breeders.

vii. Mammals are reproductively active throughout their reproductive phase are called continuous breeders.

In the above statements, the true and false statements are

1. i, ii, v, vii are correct and iii, iv, vi are wrong statements

2. i, ii, iv, vii are correct and iii, v, vi are wrong statements

3. i, ii, v, vi are correct and iii, iv, vii are wrong statements

4. i, ii, v, vii are correct and iii, iv, vi are wrong statements.

1. Embryo sac is to ovule as--------is to an anther.

1. Stamen 2. Filament 3. Pollen grain 4. Androecium

1. Match the following

|  |  |  |
| --- | --- | --- |
| Column-I | Column-II | Column-III |
| 1.Homogametes (isogametes) | P. Both male and female gametes are similar appearance. | A. *Cladophora* |
| 2. Heterogametes | Q. Male and female gametes are morphologically distinct types. | B. Majority of sexually reproducing organisms |
| 3. Bisexual plants (monoecious) | R. Plants may have both male and female reproductive structures in the same plant. | C. Date palm, Papaya |
| 4. Unisexual plant  (dioecious ) | S. Plants may have both male and female reproductive structures in different plants | D. Chara, Sweet potato, *Cucurbita*, Coconut. |
| 5. Hermaphrodite animals | T. Both male and female reproductive structures present in same organisms. | E. Cockroach, Human |
| 6. Unisexual animals | U. Male and female reproductive organspresent in separate organisms | F. Leech, Liver fluke Earthworm, Tapeworm |

1.1-P-A, 2-Q-B, 3-R-C, 4-S-D, 5-T-F, 6-U-E 2.1-P-A, 2-Q-B, 3-R-D, 4-S-C, 5-T-E, 6-U-F

3.1-P-A, 2-Q-B, 3-R-D, 4-S-C, 5-T-F, 6-U-E 4. 1-P-A, 2-Q-B, 3-R-C, 4-S-D, 5-T-E, 6-U-F

1. Find the matched pairs

i. A haploid plant produces haploid gametes - By mitosis division.

ii. A haploid parent produces haploid gametes - By meiosis division.

iii. Haploid plants – Bryophytes, Algae, Fungi, Monera

iv. Diploid plants - Pteridophytes, Gymnosperms, Angiosperms and most of animals including humans.

v. Diploid plants produce haploid gametes - By meiosis division.

vi. Diploid plants produce haploid gametes - By mitosis division

vii. Meiocytes - Present in diploid organisms. viii. Gamete mother cells - Meiocytes.

1. All except ii and iv 2. All except iii and iv

3. All except iii and vi 4. All except ii and vi

1. In parthenogenesis

1. Female gamete undergoes development to form new organism without fertilization

2. Female reproductive organ undergoes development to form new organism without fertilization

3. Male gamete undergoes development to form new organism without fertilization

4. Male reproductive organ undergoes development to form new organism without fertilization.

1. In the following, examples for parthenogenesis organisms are

1. Rotifers, Honeybees, Some Lizards, Birds. 2. Rotifers, Honeybees, all Lizards, all birds.

3. Rotifers, Honeybees, Lizards, Turkey 4. Rotifers, Honeybees, Some Lizards, Turkey

1. Few statements are given below. Find out the wrong statements:

i. Male and female gametes must be physically brought together to facilitate fusion.

ii. In all organisms, male gametes are motile and female gametes are non-motile.

iii. In Algae and bryophytes, water is the medium to transfer gametes.

iv. Male gametes are situated in pollen grain, ovule has egg in seed plants.

v. Pollination transfer pollen grains to the stigma of same flower in dioecious plants.

vi. In dioecious animals, the organism must evolve a special mechanism for gamete transfer.

1. ii. iii, vi 2. ii, iii, iv 3. ii, v 4. i, iii, iv

1. Find out A, B, C, D, E, F, G in the following table

|  |  |  |
| --- | --- | --- |
| Column-I (Organism) | Column-II (Chromosome number in meiocyte) | Column-III (Chromosome number in gamete) |
| ---A-- | 12 | 6 |
| Dog | --B--- |  |
| *Ophioglossum* | --C--- |  |
| —D-- | 34 | 17 |
| Rice |  | --E-- |
| —F-- | 380 | 190 |
| Onion |  | --G-- |

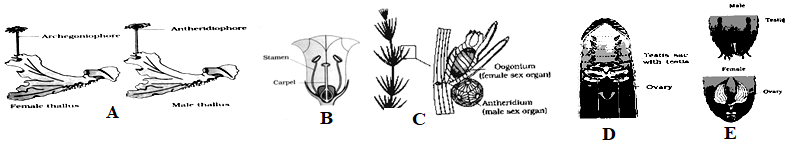
1. A-Housefly, B-78, C-1260, D-Apple, E-12, F-Butterfly, G-8

2. A-Housefly, B-39, C-1260, D-Apple, E-24, F-Butterfly, G-8

3. A-Butterfly, B-78, C-1260, D-Apple, E-12, F-Housefly, G-8

4. A-Butterfly, B-39, C-1260, D-Apple, E-24, F-Housefly, G-8

1. Identify the organism A, B, C, D, E in given figures



1. A- Monoecious plant - Marchantia, B- Bisexual flower - Sweet potato, C- Monoecious plants - Chara, D- Bisexual animal - Earthworm, E- Unisexual animal - Cockroach.

2. A- Dioecious plant - Marchantia, B- Bisexual flower - Sweet potato, C- Monoecious plants - Chara, D-Bisexual animal - Earthworm, E- Unisexual animal - Cockroach.

3. A- Dioecious plant - Marchantia, B- Bisexual flower- Sweet potato C- Dioecious plants - Chara, D-Bisexual animal - Earthworm, E- Unisexual animal - Cockroach.

4. A- Monoecious plant - Marchantia, B- Bisexual flower - Sweet potato, C- Dioecious plants- Chara, D- Bisexual animal - Earthworm, E- Unisexual animal - Cockroach.

1. Find the correct statements in the following:

i. In Algae, fishes, amphibians syngamy occurs in external medium (water).

ii. Organisms exhibiting external fertilization show great synchrony between the sexes and release a large number of gametes to the water\iii. Syngamy occur inside the body of organism is called internal fertilization.

iv. Zygote into embryo formation is the post fertilization events.

v. In Algae and fungi zygote develops thick wall that is resistant to desiccation and damage.

vi. In organisms with diplontic life cycle zygote divides by meiosis to form haploid spores that grow into haploid individuals

vii. During embryogenesis zygote undergoes cell division only.

1. All are correct 2. All except vi and vii 3. All except vi 4. All except vii

1. Find the wrong differences in the following

|  |  |
| --- | --- |
| Oviparous animals | Viviparous animals |
| 1. Zygote development outside the female parent | Zygote development inside the female parent |
| 2. Egg laying animals | Give birth to young ones |
| 3. E.g.: Reptiles and Birds | Eg: Higher mammals including humans. |
| 4. Calcarious shell is present | Shell is absent |
| 5. Incubation is required | Incubation is not required |
| 6. Proper embryonic care is present | Proper embryonic care is absent |
| 7. Chances of survival of young ones are more | Chances of survival of young ones are less. |

1. 5 and 6 2. 6 and 7 3. 3 and 4 4. 4 and 6

1. Following events are after fertilization. Find out matched pairs

i. Zygote is formed inside the ovule - In flowering plants. ii. Sepals, petals and stamen - fall off.

iii. The zygote develops into - embryo iv. Ovules develop into – seeds

v. Ovary develops into - fruit vi. Seed germinates - Produce new plant

1. i, ii, iii 2. ii, iii, iv 3. iii, iv, vi 4. All the above

1. The period of growth and maturity before sexual reproduction of organisms is called

1. Juvenile phase in animals 2. Vegetative phase in plants

3. Both 1 and 2 4. None of these

1. Among the term listed, those that of are not technically correct names for a floral whorl are

i. Androecium ii. Carpel iii. Corolla iv. Sepal

1. i and iv 2. iii and iv 3. ii and iv 4. i and ii

1. A dicotyledonous plant bears flowers but never produce fruits and seeds. The most probable cause for the above situation is

1. Plant is dioecious and bears only pistillate flowers

2. Plant is dioecious and bears both pistillate and staminate flowers

3. Plant is monoecious

4. Plant is dioecious and bears only staminate flowers

1. The features of tapetum are

i. Cells of tapetum possess dense cytoplasm and coenocytic condition.

ii. Tapetum nourishes the developing pollen grains.

iii. It is the outer most layer of spopogenous tissue.

1. i, ii 2. i, ii, iii 3. ii, iii 4. i, iii

1. Select the mismatched pair

1. Microsprangium - Pollen sac 2. Megasporangium - Ovule

3. Pollen grain - Male gamete 4. Embyro sac - Female gametophyte

1. *Parthenium* that came into India as a contaminant with imported -----A-------, has become ubiquitous in occurrence and causes -----B-----

1. A-Rice, B-Pollen allergy 2. A-Wheat, B- Pollen allergy

3. A-Sugar cane, B-Pollen energy 4. A-Bajra, B- Pollen allergy

1. i. Flowers are morphological and embryological marvels and the sites of sexual reproduction.

ii. Inflorescences are formed which bear the floral buds and then the flowers.

iii. The number and length of stamens are variable in flowers of different species.

iv. A dithecous anther means anther contains two micro sporangia.

v. The micro sporangia develop further and become pollen grains.

vi. Pollen sacs extend longitudinally all through the length of an stamen and are packed with pollen grians.

vii. Micro sporangium is generally surrounded by four wall layers- epidermis, endothecium, middle layers and Tapetum

viii. Outer three layers perform the functions of protection and dehiscence of anther.

ix. Cells of tapetum undergo meiosis and produce microspore tetrads.

In the above statements, the correct and wrong statements are

1. i, ii, iii, vi, viii are correct, iv, v, vii, ix are wrong

2. i, ii, iii, vii, ix are correct, iv, v, vi, viii are wrong

3. i, ii, iii, v, viii are correct, iv, vi, vii, ix are wrong

4. i, ii, iii, vii, viii are correct, iv, v, vi, ix are wrong

1. Refer the given statements:

i. The cells of sporogenous tissue undergo meiotic division to form microspores.

ii. The process of formation of microspores from sporogenous cell is called microsporoganesis.

iii. The microspores formed are arranged in a cluster of four cells-the microspore tetrad.

iv. As the anther mature and dehydrate, the microspores dissociate from each other and develop into pollen grains.

v. Inside each microsporangium, limited number of pollen grains are produced.

Which of the given statements is / are not true?

1. iii, iv 2. iv, v 3. ii, iii 4. V

1. Select the matched pairs

a. Storage of pollen grains - 196˚C b. Pollen allergy - Carrot grass.

c. Chasmogamous flower - Exposed anthers and stigma d. Xenogamy - Self pollination

e. Geitonogamy – Scientific self pollination f. Cleistogamous flowers – Commelin

1. All except d 2. All except f 3. All except e 4. All except c

1. In some cereals such as ---A--- and ---B---pollen grain lose viability within --C-- of their release and in some members of Rosaceae, Leguminoseae, Solanaceae, they maintain viability for ---D---

1. A-Rice, B- Wheat, C-30 minutes, D-months 2. A-Rice, B-Wheat, C- months, D-30 minutes

3. A-Rice, B- Wheat, C-30 hours, D- months 4. A-Rice, B-Wheat, C-30 minutes, D-few hours

1. In the following correct statement/s of embryo sac is/are

i. It is also female gametophyte. ii. It is produced from the megaspore mother cell.

iii. Egg apparatus situated at the micropylar end iv. Antipodal cells situated at the chalazal end.

v. Central cell processes two haploid nuclei.

vi. Egg apparatus contains one haploid egg cell and diploid synergids

vii. Filiform apparatus present below the Egg cell, which guide the pollen grain to enter into the embryo sac.

viii. Antipodal cells are haploid

ix. After fertilization, antipodal cells and synergids disintegrate

1. i, iii, iv, v, vii, ix 2. i, iii, iv, v, viii, ix 3. i, iii, iv, v, vi, ix 4. i, ii, iv, v, viii, ix

1. Refer the given statements:

i. The pollen grain represents the male gametophyte.

ii. The pollen grain is spherical, measuring about 25-50 micrometers in diameter.

iii. Outer layer of pollen grain is testa and inner layer is tegmen.

iv. The outer layer is made up of sporopollenin.

v. Inner layer is pecto-cellulosic in nature.

vi. Prominent aperture in the outer layer of pollen grain is the germ pore which deposited with sporopollenin.

vii. Due the presence of sporopollenin, pollen grains are well preserved in fossil form.

viii. Inner layer is thick and continuous.

ix. Plasma membrane present around the cytoplasm.

x. Vegetative and generative cells present in mature pollen grain.

xi. Vegetative cell is smaller with irregular shaped nuclei, and generative cell is larger with spherical shaped nucleus.

xii. Spindle shaped cell is generative cell

Which of the given statements are not true regarding structure of pollen grain?

1. i, ii, iv, v, vii, x, xi 2. iii, vi, viii, xi 3. i, iii, vi, vii, viii, ix 4.iii, iv, v, vii, ix

1. Find the matched pairs

i. Funicle—Stalk of the ovule.

ii. Nucellus---Central mass of tissue present in ovule.

iii. Embryo sac---Female gametophyte present inside the ovule.

iv. Hilum----Basal part of the ovule . v. Integuments---Covering of the ovule.

vi. Syncarpous—Carpels are free. vii. Apocarpous---Carpels are united.

viii. Micropyle---Integuments are not fully covered to the nucellus, leaving gap at the terminal region

1. i, ii, iv, vi, viii 2. i, ii, iv, v, vii 3. i, ii, iii, v, viii 4. i, ii, iv, v, viii

1. In Angiosperms, the embryo sac is called

1. 8 celled 7 nucleated type 2. 7 celled 8 nucleated type

3. 6 celled 8 nucleated type 4. 7 celled 7 nucleated type

1. Allergic disorders like Asthma, bronchitis etc is due to

1. Allergic pollen grains of Eupatorium

2. Allergic pollen grains of Carrot grass and Eupatorium

3. Allergic pollen grains of Grasses 4. Allergic pollen grains of Carrot grass

1. The term monosporic development means

1. Single megaspore mother cell is differentiated in ovule during megasporogenesis.

2. The method of embryosac formation from single megaspore

3. Single pollen tube formation from pollen grain 4. None of the above.

1. The conditions of cell divisions in embryo sac development of Angiosperms are

1. Initially mitotic divisions are free nuclear up to 8 nuclei, after 8 nucleate stage, cell walls are laid down

2. From the beginning itself cellular types of mitosis divisions occur and gametophyte develops.

3. First 8 celled stage divisions are cellular type, then free nuclear type.

4. First 6 celled stage divisions are free nuclear type, then cellular type of mitotic divisions

1. In Angiosperm embryo sac development, after 8 nucleate stag

1. Cell walls are laid down around the 8 nuclei.

2. Cell walls are laid down around the 6 nuclei

3. Cell walls are laid down around the 4 nuclei.

4. Cell walls are laid down around the 4 nuclei.

1. In the following find out correct statements

A. Chasmogamous flower promotes self and cross pollination.

B. Cleistogamous flowers promote self pollination

C. Xenogamy promote self and cross pollination.

D. Geitonogamy promote cross pollination

1. A, B, C 2. B, C, D 3. A, B, D 4. All are correct

1. Which of the following options is correct?

1. Transfer of pollen grains from the anther to the stigma of the same flower-Autogamy

2. Transfer of pollen grains from the anther of one flower to the stigma of another flower of same plant---Xenogamy.

3. Transfer of pollen grains from the anther to the stigma of a genetically different plants- Geitonogamy

4. The flowers which do not open at all- Chasmogamous

1. The type of contrivances present in Primula, Jasminum and Oxalis flowers is

1. Self sterility 2. Decliny 3. Dichogamy 4. Heterostyly

1. Number of mitotic division occurs in the formation of 8 nucleate embryo sac is

1. 2 2. 3 3. 1 4. 4

1. The flowers present in *Viola, Oxalis* and *Commelina* are

1. *Viola* and *Oxalis* possess chasmogamous flowers only.

2. *Viola* and *Oxalis* possess cleistogamous flowers only.

3. *Viola, Oxalis* and *Commelina* possess cleistogamous flowers only.

4. *Viola, Oxalis* and *Commelina* possess both cleistogamous and chasmogamous flowers

1. In the following, protoandry types of flowers producing plants are

1. *Helianthus, Clerodendron, Ocimum, Leucas, Allium*

2. *Solanum, Scrophularia,* Wheat, Paddy*, Michelia*

3. *Valisnaria*, Palms, *Casuarina, Gossypium, Michelia*

4. *Solanum, Scrophularia, Ocimum, Leucas, Allium*

1. Refer the given characteristics of some flowers and select the correct option

i. Light and non-sticky pollen grians. ii. Exposed stigmas and anthers

iii. Large, often feathery stigma iv. Flowers colourless, odourless and nectorless

v. Common in grasses.

1. Anemophily 2. Hydrophily 3. Entomophily 4. Zoophily

1. The female flowers reach the surface of water by the long stalk and the male flowers or pollen grains are released on the surface of water. They are carried passively by water currents. Some of them eventually reach the female flowers and the stigma. This type of pollination mechanism present in

1. *Zostera* 2. *Vallisnaria* and *Hydrilla*

3. *Vallisnaria* only 4. *Hydrilla* only

1. Pollen grains are long and ribben like in case of

1. Vallisnaria 2. Hydrilla 3. Sea grass 4. Both 1 and 3.

1. In which group of plants, mucilagenous covering present around the pollen grain?

1. Most of the wind pollinating species 2. Most of the water pollinating species

3. Most of bird pollinating species 4. Most of insect pollinating species.

1. Read the following statements

i. Pollination does not guarantee the transfer of the compatible pollen of the same species on stigma.

ii. Incompatible pollen grains also deposited on the stigma.

iii. The pistil has the ability to recognize the pollen, whether it is of right type or wrong type.

iv. Pistil accepts the compatible pollen grains and promotes post-pollination events.

v. The pistil reject the incompatible pollens, by preventing pollen germination on the stigma or pollen tube growth in the style

vi. The pollen pistil interaction is due to chemical components of the pollen interacting with those of the pistil.

vii. The right pollen grain germinates on the stigma to produce a pollen tube through one of the germ pores

viii. Pollen grains are shed at 2 celled stage, the vegetative cell divides and produce two male gametes during their growth of pollen tube in the stigma.

ix. Pollen grains are shed at 3 celled condition, pollen tube carry the two male gametes from the beginning.

x. Pollen tube enters the ovule through the micropyle and then enters one of the synergids through the filiform apparatus.

In the above statements the wrong statements are

1. All are wrong 2. Only viii is wrong 3. Only vi is wrong 4.None of the above

1. Outbreeding devices means flowering plants have developed many devices

1. To discourage Autogamy and to encourage Allogamy.

2. To encourage Autogamy and to discourage Allogamy.

3. To encourage Autogamy and to Allogamy.

4. To discourage Autogamy and to Allogamy

1. Match the following statements and find incorrect statements.

A. Chiropterophily---Cross pollination is favored by bats. Eg: *Bauhinia, Megalandra, Kigetia pinnata*

B. Myrmecophily—Pollination by ants. Eg: Mango, South American *Acacia*

C. Malacophily---Pollination by snails and slugs. Eg: *Chrysanthumum, Leucanthemum*.

D. Entamophily---Pollination by Insects. Eg: *Amorphophallus, Yucca*

E. Anemophily—Pollination by wind. Eg: Corn cob, Grasses

F. Hydrophily—Pollination by water. Eg: *Vallisnaria, Hydrilla*, Sea grass

1. All 2. A, B, C, D and F 3. All except E and F 4. None of the above

1. In the following find out characters are related to insect pollinating flowers

i. Flowers are large, colourful, fragrant and rich in nectar.

ii. Small flowers are clustered into an inflorescence to make them conspicuous.

iii. In some species, Flowers secrete foul odours.

iv. Some species flowers providing safe places to lay eggs.

1. i, ii, iii only 2. i, ii, iv only 3. ii, iii, iv only 4. All of these

1. Fill in the blanks

i. Production of dioecious flowers is the one type of out breeding devices. If both male and female flowers are present on the same plant such a castor and maize. It prevents ----A --- but not --- B---

ii. In several dioecious plants such as papaya can prevent both -------C -----and ------D---

1. A- Autogamy, B - xenogamy, C-autogamy, D- xenogamy

2. A-Autogamy, B - geitonogamy, C- autogamy, D- xenogamy

3. A- Autogamy, B - xenogamy, C- autogamy, D- geitonogamy

4. A- Autogamy, B - geitonogamy, C- autogamy, D- geitonogamy

1. The three cells found in a pollen grain when it is shed at 3-celled stage are

1. 1-vegetative cell, 1-generative cell, 1- male gamete.

2. 1-vegetative cell, 2-male gametes.

3. 1-generative cell, 2-male gametes 4. Either 1 or 2.

1. Given below are the events that are observed in an artificial hybridization programme. Arrange them in the correct sequential order and select the correct option

1. Re-bagging 2. Selection of parents 3. Bagging

4. Dusting the pollen on the stigma 5. Emasculation

6. Collection of pollen from male parent

1. 2→3→5→6→4→1 2. 2→5→3→6→4→1

3. 5→2→3→6→1→4 4. 2→3→6→4→5→1

1. The term emasculation means

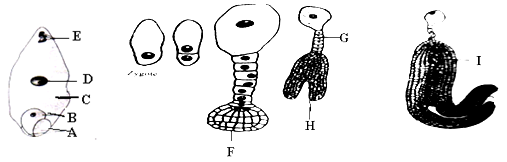
1. Removal of anthers from the staminate flower bud before the anther dehiscence using a pair of forceps.

2. Removal of anthers from the bisexual flower bud before the anther dehiscence using a pair of forceps

3. Removal of anthers from the staminate flower bud after the anther dehiscence using a pair of forceps.

4. Removal of anthers from the bisexual flower bud after the anther dehiscence using a pair of forceps.

1. Identify the parts labeled A, B, C, D, E, F, G, H and I in the given figure and select the correct option



1. A-degenerating antipodal cells, B-Zygote, C-Primary endosperm cell, D-Primary endosperm nucleus, E-Degenerating synergids, F-Globular embryo, G-suspensor, H-Heart shaped embryo, I-Radicle

2. A-degenerating synergids, B-Zygote, C-Primary endosperm cell, D-Primary endosperm nucleus, E- Degenerating antipodal cells, F-Globular embryo, G- Heart shaped embryo, H- suspensor, I-Plumule

3. A-degenerating antipodal cells, B-Zygote, C-Primary endosperm cell, D-Primary endosperm nucleus, E- Degenerating synergids, F-Globular embryo, G-suspensor, H-Heart shaped embryo, I-Plumule

4. A-degenerating synerids, B-Zygote, C-Primary endosperm cell, D-Primary endosperm nucleus, E-Degenerating antipodal cells, F-Globular embryo, G-suspensor, H-Heart shaped embryo, I-Radicle

1. The true embryo develops as a result of fusion of

1. Two polar nuclei of embryo sac. 2 .Egg cell and male gamete

3. Synergids and male gamete 4. Male gamete and antipodals.

1. The double fertilization and triple fusion in Angiosperms means

1. Double fertilization--One of the male gamete fuses with egg cell produce zygote, and another male gamete fuses with central cell produces PEN. Triple fusion---The fusion of 3 haploid nuclei (2 polar nuclei and 1 sperm nucleus)

2. Double fertilization--One of the male gamete fuses with egg cell produce zygote, and another male gamete fuses with central cell produces PEN. Triple fusion---The fusion of 2 haploid and 1 diploid nuclei (2 polar nuclei and 1 sperm nucleus)

3. Double fertilization--One of the male gamete fuses with egg cell produce zygote, and another male gamete fuses with central cell produces PEC. Triple fusion---The fusion of 3 haploid nuclei (2 polar nuclei and 1 sperm nucleus).

4. Double fertilization--one of the male gamete fuses with egg cell produce zygote, and another male gamete fuses with polar nuclei produces PEN. Triple fusion---The fusion of 3 haploid nuclei (2 polar nuclei and 1 sperm nucleus).

1. In the following find out mismatched pairs

A. Porogamy—Pollen tube enters into the ovule through the micropyle. E.g.: Found in most of angiosperms (*Capsella*).

B. Chalazogamy—The pollen tube enters into the ovule through chalazal region. E.g.: Betula and Jaglans (Wulnut)

C. Mesogamy—The pollen tube enter into the ovule either through integuments (*Cucurbita*) or through the funicule (Pistaceae and *Populous*)

1. A only 2. B only 3. C only 4. None of the above

1. Milk of tender coconut represents --i-- and the surrounding white coconut meal represents ---ii----

i ii

1. Cellular endosperm Free-nuclear endosperm

2. Free nuclear Cellular type

3. Helobial endosperm Cellular endosperm

4. Free-nuclear endosperm Helobial endoeperm

1. Endosperm is completely consumed by the developing embryo in

1. Pea and Ground nut 2. Maize and Castor 3. Castor and Ground nut 4. Maize and pea

1. Persistent nucellus is called ------ and is found in --------

1. Perisperm, Black pepper 2. Perisperm, Ground nut

3. Endosperm, Black pepper 4. Endosperm, Ground nut

1. In the following parts, the parts of dicot embryo are

Coleoptile, coleorrhiza, radicle, plumule, epiblast, scutellum, cotyledons, epicotyle, hypocotyle, root cap

1. Radicle, Plumule, Cotyledons, Epicotyle, Hypocotyle, Root cap

2. Coleoptile, Coleorrhiza, Radicle, Plumule, Epibalst, Scutellum.

3. Radicle, Plumule, coleoptiles, Cotyledons, Epicotyl, Root cap

4. Radicle, Plumule, Cotyledons, Epiblast, root cap

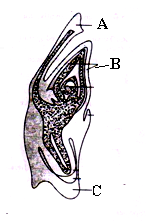
1. In Angiosperms, normally after fertilization

1. The zygote divides earlier than the primary endosperm nucleus.

2. The primary endosperm nucleus divides earlier than zygote.

3. Both the zygote and primary endosperm nuclei divide simultaneously.

4. Both the zygote and primary endosperm nuclei undergo a resting period.

1. Identify the parts labeled A, B, and C in the given figure

A B C

1. Scutellum coleorrhiza Coleoptile

2. Scutellum Coleoptile Coleorrhiza

3. Coleoptile Scutellum Coleorrhiza

4. Coleorhiza Scutellum Coleoptile

1. Select the correct statement regarding Parthenocarpy

1. Formation of fruit without fertilization.

2. Development of seed less fruits as in banana, Grapes, Navel orange etc.

3. Auxins and gibberellins are used to induce parthenocarpy in different plants.

4. All of these.

1. In albuminous seeds, food is stored in -------- and in non albuminous seeds, it is store a in ------

1. Endosperm, cotyledons 2. Cotyledons, endosperm

3. Nucellus, cotyledons 4. Endosperm, radical

1. This is an example of a very old seed excavated from Arctic Tundra. The seed germinated and flowered after an estimated record of 10,000 years of dormancy it is --------

1. *Victoria*  2. *Lupinus arcticus*

3. *Phoenix dactylifera* 4. *Strobilanthus kunthiana*

1. A recent record of 2000years old viable seed is of the -------A---------discovered during the archeological excavation at -----B--------palace near the --------C------

1. A-*Phoenix dactylifera*, B- King Herod’s, C-Dead sea

2. A- *Lupinus arcticus*, B- King Herod’s, C-Dead sea

3. A- *Strobilanthus kunthiana*, B- King Herod’s, C-Dead sea

4. A- *Victoria*, B-King Herod’s, C-Dead sea

1. In an endosperm cell of an angiosperm contains 24 chromosomes, the number of chromosomes in each cell of the root will be

1. 8 2. 4 3. 16 4. 24

1. Choose the mis- matched option

1. *Cannabis* - Anemophily 2. *Zostera* – Hydrophily

3. *Salvia* - Entomophily 4. *Adansonia* - Ornithophily

1. Ploidy of ovary, anther, egg, pollen, male gamete and zygote are respectively

1. 2n, 2n, n, 2n, n, 2n 2. 2n, 2n, n, n, n, 2n

3. 2n, n, n, n, n, n 4. 2n, 2n, n, 2n, 2n, 2n

1. Find the mismatched pair

a. Pericarp---fruit wall

b. False fruit---Fruits that develop from the thalamus are called as false fruits. E.g.: Apple, Cashew

c. Fruits that develop from the ovary are called true fruits.

d. The fruit may be fleshy (E.g.: Guava, Orange, Mango) or may be dry (E.g.: Groundnut, mustard)

e. In apple, the fleshy receptacle forms the main edible part.

f. Fruits that develop without fertilization-Parthenocarpic fruits. E.g.: Banana, Seedless grape etc

g. It is the production of seeds without involving the process of meiosis and syngamy--Apomixis. E.g.: some species of Asteraceae and Grasses.

h. Apomixis is a form of asexual reproduction that mimics sexual reproduction

i. In many species (e.g.: *Citrus* and mango) some of the nucellar cells surrounding the embryo sac divide, protrude into the embryo sac and develop into the embryos. In such species each ovule contains many embryos.

j. Occurrence of more than one embryo in a seed is Polyembryony.

k. Polyembryony was first discovered by Leeuwenhoek in 1719 in case of *Citrus*.

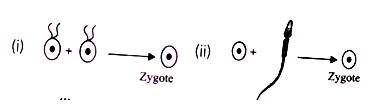
l. Simple polyembryony---It is due to fertilization of more than one egg cell in an ovule. E.g.: *Casuarina, Citrus* etc

m.Cleavage polyembryony-- It is caused by splitting of pre-embryo into 2 or more parts and branching of proembryo. E.g.: *Pinus*, orchids etc

n. Adventitive polyembryony--It is formation of additional embryos from different parts of the ovule like synergids, antipodal cells, nucellus, etc. E.g.: *Citrus, Opuntia*, Onoin etc

1. First six statements 2. Last five statements

3. First seven statements 4. None of the above

1. Refer the given diagrams showing different types of syngamy and select the option that gives correct example of each of these

i ii

1. *Fucus* *Chlamydomonas*

2. *Homosapiens* *Fucus*

3. *Fucus* *Cladophora*

4. *Cladophora* *Homo sapien*s

1. In fertilized embryo sac, the haploid, diploid and triploid structures are

1. Synergid, zygote and primary endosperm nucleus

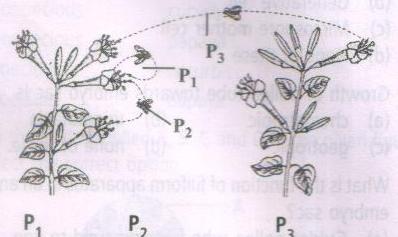
2. Synergid, antipodal cells and polar nuclei

3. Antipodal, synergid and primary endosperm nucleus 4. Synergid, polar nuclei and zygote

1. The male gamete of rice plant has 12 chromosomes in their nucleus. The chromosome number in the female gamete, zygote and the cells of the seedlings will be respectively

1. 12, 24, 12 2. 24, 12, 12 3. 12, 24, 24 4. 24, 12, 24

1. The given diagram shows two plants of the same species. Identify the types of pollination indicated at P1,P2 and P3

 P1 P2 P3

1. Allogamy Chasmogamy Cleistogamy

2. Autogamy Xenogamy Geitonogamy

3. Autogamy Geitonogamy Xenogamy

4. Geitonogamy Allogamy Autogamy

1. Select the correct option regarding the ploidy level of different structures of an angiospermous ovule.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Nucellus | MMC | Functional megaspore |
| 1. | n | 2n | 2n |
| 2. | 2n | n | n |
| 3. | 2n | 2n | n |
| 4. | n | 2n | n |

1. In the following , the characters related to asexual reproduction are

A. The offsprings are produced from one parent

B. There is no union of gametes.

C. All offsprings are morphologically and genetically similar

D. Asexual reproduction is common among single celled organisms.

E. It is a kind of reproduction where two parents participate.

F. It involves fusion of male and female gametes.

1. A, B, D and E 2. A, B, E and F 3. A, B, C and D 4. A, B, C and F

**TOPIC: Reproduction in organisms and Sexual reproduction in flowering plants**

**UNIT NO: B-11**

**ANSWER KEY**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** |
| 1 | **3** | 2 | **4** | 3 | **1** | 4 | **4** | 5 | **4** |
| 6 | **4** | 7 | **4** | 8 | **3** | 9 | **3** | 10 | **3** |
| 11 | **3** | 12 | **2** | 13 | **4** | 14 | **4** | 15 | **1** |
| 16 | **4** | 17 | **3** | 18 | **4** | 19 | **1** | 20 | **3** |
| 21 | **3** | 22 | **4** | 23 | **1** | 24 | **4** | 25 | **3** |
| 26 | **1** | 27 | **2** | 28 | **2** | 29 | **2** | 30 | **4** |
| 31 | **3** | 32 | **3** | 33 | **4** | 34 | **2** | 35 | **3** |
| 36 | **2** | 37 | **4** | 38 | **4** | 39 | **1** | 40 | **1** |
| 41 | **2** | 42 | **2** | 43 | **3** | 44 | **2** | 45 | **2** |
| 46 | **2** | 47 | **1** | 48 | **2** | 49 | **1** | 50 | **1** |
| 51 | **4** | 52 | **2** | 53 | **4** | 54 | **1** | 55 | **1** |
| 56 | **3** | 57 | **3** | 58 | **2** | 59 | **2** | 60 | **1** |
| 61 | **4** | 62 | **4** | 63 | **4** | 64 | **2** | 62 | **2** |
| 66 | **2** | 67 | **4** | 68 | **2** | 69 | **4** | 70 | **4** |
| 71 | **2** | 72 | **1** | 73 | **1** | 74 | **1** | 75 | **2** |
| 76 | **2** | 77 | **4** | 78 | **1** | 79 | **2** | 80 | **1** |
| 81 | **3** | 82 | **4** | 83 | **2** | 84 | **4** | 85 | **4** |
| 86 | **1** | 87 | **3** | 88 | **3** | 89 | **3** | 90 | **3** |