Morphology Of Flowering Plants

Question1

Match List-I with List-II :

	List-I		List-II
A.	Vexillary aestivation	I	Brinjal
B.	Epipetalous stamens	II	Peach
C.	Epiphyllous stamens	III	Pea
D.	Perigynous flower	IV	Lily

Choose the correct answer from the options given below :

[NEET 2024 Re]

Options:

A.

A-III, B-I, C-IV, D-II

B.

A-III, B-IV, C-I, D-II

C.

A-III, B-II, C-I, D-IV

D.

A-II, B-I, C-IV, D-III

Answer: A

Solution:

In pea, vexillary aestivation is found.

Perigynous flowers are observed in peach.

Epiphyllous stamens are found in lily.

Epipetalous stamens are found in brinjal.

Question2

Which of the following examples show monocarpellary, unilocular ovary with many ovules?
A. Sesbania

B. Brinjal
C. Indigofera
D. Tobacco
E. Asparagus

Choose the correct answer from the options given below :

[NEET 2024 Re]

Options:

A.

B and E only

B.

C, D and E only

C.

A, B and D only

D.

A and C only

Answer: D

Solution:

Monocarpellary, unilocular ovary with many ovules is the characteristic feature of the members of the family Fabaceae. Sesbania and Indigofera are the members of this family. Brinjal and tobacco belong to the family Solanaceae whereas Asparagusbelongs to the family Liliaceae.

Question3

Which of the following is an example of actinomorphic flower?

[NEET 2024]

Options:

A.

Datura

B.

Cassia

C.

Pisum

D.

Sesbania

Answer: A

Solution:

Datura shows actinomorphic flower. In Cassia, Pisum and Sesbania, zygomorphic flowers are seen.

Question4

Bulliform cells are responsible for

[NEET 2024]

Options:

A.

Inward curling of leaves in monocots.

B.

Protecting the plant from salt stress.

C.

Increased photosynthesis in monocots.

D.

Providing large spaces for storage of sugars.

Answer: A

Solution:

In grasses, certain adaxial epidermal cells along the veins modify themselves into large, empty, colourless cells. These are called bulliform cells. When the bulliform cells in the leaves have absorbed water and are turgid, the leaf surface is exposed. When they are flaccid due to water stress, they make the leaves curl inwards to minimise water loss.

Question5

Match List I with List II

	List-I		List-II
A.	Rose	I.	Twisted aestivation
B.	Pea	II.	Perigynous flower
C.	Cotton	III.	Drupe
D.	Mango	IV.	Marginal placentation

Choose the correct answer from the options given below :

[NEET 2024]

Options:

A.

A-II, B-IV, C-I, D-III

B.

A-I, B-II, C-III, D-IV

C.

A-IV, B-III, C-II, D-I

D.

A-II, B-III, C-IV, D-I

Answer: A

Solution:

Rose have half-inferior ovary, thus it is known as Perigynous flower.

In Pea, the placenta form a ridge along the ventral suture of the ovary and ovules are borne on this ridge forming two rows.

In Cotton, twisted aestivation is present.

In Mango, fruit is drupe.

Question6

Match List I with List II

	List-I (Types of Stamens)		List-II (Example)
A.	Monoadelphous	I.	Citrus
B.	Diadelphous	II.	Pea
C.	Polyadelphous	III.	Lily
D.	Epiphyllous	IV.	China-rose

Choose the correct answer from the options given below

[NEET 2024]

Options:

A.

A-IV, B-II, C-I, D-III

B.

A-IV, B-I, C-II, D-III

C.

A-I, B-II, C-IV, D-III

D.

A-III, B-I, C-IV, D-II

Answer: A

Solution:

In China rose monoadelphous androecium is present.

Diadelphous androecium is found in pea plant.

Polyadelphous androecium is found in citrus.

Epiphyllous androecium is found in lily

Question7

Family Fabaceae differs from Solanaceae and Liliaceae. With respect to the stamens, pick out the characteristics specific to family Fabaceae but not found in Solanaceae or Liliaceae.

[NEET 2023]

Options:

A.

Polyadelphous and epipetalous stamens

B.

Monoadelphous and Monothecous anthers

C.

Epiphyllous and Dithecous anthers

D.

Diadelphous and Dithecous anthers

Answer: D

Solution:

Fabaceae → Diadelphous and dithecous anther.

Solanaceae → Polyandrous, epipetalous and dithecous anther.

Liliaceae → Polyandrous, epiphyllous and dithecous anther.

Question8

Axile placentation is observed in

[NEET 2023]

Options:

A.

China rose, Beans and Lupin

B.

Tomato, Dianthus and Pea

C.

China rose, Petunia and Lemon

D.

Mustard, Cucumber and Primrose

Answer: C

Solution:

China rose, Tomato, Petunia and Lemon show axile placentation.
Dianthus and Primrose show free central placentation.
Pea, Lupin and Beans show marginal placentation.
Cucumber and mustard show parietal placentation.

Question9

Given below are two statements : One is labelled as Assertion A and the other is labelled as Reason R :

Assertion A : A flower is defined as modified shoot wherein the shoot apical meristem changes to floral meristem.
Reason R : Internode of the shoot gets condensed to produce different floral appendages laterally at successive node instead of leaves.

In the light of the above statements, choose the correct answer from the options given below :

[NEET 2023]

Options:

A.

Both A and R are true but R is NOT the correct explanation of A

B.

A is true but R is false

C.

A is false but R is true

D.

Both A and R are true and R correct explanation of A

Answer: D

Solution:

Solution:

A flower is a modified shoot wherein the shoot apical meristem changes to floral meristem.

Internodes do not elongate and the axis gets condensed. The apex produces different kinds of floral appendages laterally at the successive nodes instead of leaves.

Therefore, both A and R are true and R is correct explanation of A.

Question10

In Calotropis, aestivation is :

[NEET 2023 mpr]

Options:

A.

Valvate

B.

Vexillary

C.

Imbricate

D.

Twisted

Answer: A

Solution:

When sepals or petals in a whorl just touch one another at margin, without overlapping, as in Calotropis, it is said to be valvate.
Imbricate aestivation is exhibited by Cassia,
Twisted aestivation is exhibited by China rose,
Vexillary aestivation is exhibited by Pea.

Question11

In a pea flower, five petals are arranged in a specialized manner with one posterior, two lateral and two anterior. These are named as____,____ and____ respectively.

[NEET 2023 mpr]

Options:

A.

Keel, Wings and Standard

B.

Vexillum, Keel and Standard

C.

Keel, Standard and Carina

D.

Standard, Wings and Keel

Answer: D

Solution:

In a typical pea flower, which is a type of papilionaceous flower, the petals are arranged in a specific pattern. The single large posterior petal, often larger and more visually striking than the others, is known as the 'standard' or 'banner'. The two lateral petals are referred to as 'wings'. The two anterior petals are usually fused at their edges and form a structure that looks like a boat's keel, which is why they are called the 'keel'. So, the arrangement is 'Standard, Wings and Keel'.

Question12

	Type of flower		Example
(A)	Zygomorphic	(I)	Mustard
(B)	Hypogynous	(II)	Plum
(C)	Perigynous	(III)	Cassia
(D)	Epigynous	(IV)	Cucumber

Select the correct option :

[NEET 2023 mpr]

Options:

A.

(A)-(I), (B)-(II), (C)-(IV), (D)-(III)

B.

(A)-(I), (B)-(II), (C)-(III), (D)-(IV)

C.

(A)-(IV), (B)-(I), (C)-(III), (D)-(II)

D.

(A)-(III), (B)-(I), (C)-(II), (D)-(IV)

Answer: D

Solution:

Zygomorphic : These are flowers that can only be divided into two equal halves by one particular vertical plane. An example is the flower of Cassia.

Hypogynous : In these types of flowers, the gynoecium occupies the highest position while the other parts are situated below it. The flower is said to have a superior ovary and is hypogynous. An example of a hypogynous flower is mustard.

Perigynous : In these flowers, the gynoecium is located in the center and other floral parts are located on the rim of the thalamus almost at the same level. The ovary here is said to be half inferior. Plum flowers are examples of perigynous flowers.

Epigynous : In these flowers, the margin of thalamus grows upward enclosing the ovary completely and gets fused with it, the ovary is said to be inferior as the other floral parts are situated above the ovary. An example of an epigynous flower is cucumber.

Question13

Which of the following statements is not correct? [NEET Re-2022]

Options:

A. The rhizome is thick, prostrate and branched

B. Rhizome is a condensed form of stem

C. The apical bud in rhizome always remains above the ground

D. The rhizome is aerial with no distinct nodes and internodes

Answer: D

Solution:

The rhizome is an underground stem modification with distinct nodes and internodes.

Question14

List - I	List - II
(a) Imbricate	(i) Calotropis
(b) Valvate	(ii) Cassia
(c) Vexillary	(iii) Cotton
(d) Twisted	(iv) Bean

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

Options:

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

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

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

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

Answer: C

Solution:

Solution:

Aestivation-Mode of arrangement of sepals or petals in a floral bud with respect to other member of same whorl is called aestivation. It is of following types-
(a) Valvate-The margins of sepals or petals, present in whorl just touching each other. eg → Calotropis.
(b) Twisted- Margin of one petal or sepal overlaps the margin of adjacent one. Egchina rose, ladyfinger, cotton.
(c) Imbricate-Margins of petals or sepals overlaps each other but not in a particular direction. Eg-Cassia, Gulmohar.
(d) Vexillary-Largest petal(standard) overlaps two smaller lateral petals (wings) which in turn overlaps two smallest anterior petals (Keel) eg → Pea, bean flower.

Question15

The Floral Diagram represents which one of the following families

[NEET Re-2022]

Options:

A. Liliaceae

B. Fabaceae

C. Brassicaceae

D. Solanaceae

Answer: C

Solution:

The floral diagram represents Brassicaceae family.

$K_{2+2}C_4A_{2+4}xG_{(2)}$

Question16

Identify the correct set of statements :
(a) The leaflets are modified into pointed hard thorns in Citrus and Bougainvillea
(b) Axillary buds form slender and spirally coiled tendrils in cucumber and pumpkin
(c) Stem is flattened and fleshy in Opuntia and modified to perform the function of leaves
(d) Rhizophora shows vertically upward growing roots that help to get oxygen for respiration
(e) Subaerially growing stems in grasses and strawberry help in vegetative propagation
Choose the correct answer from the options given below :
[NEET-2022]

Options:

A. (b) and (c) Only

B. (a) and (d) Only

C. (b), (c), (d) and (e) Only

D. (a), (b), (d) and (e) Only

Answer: C

Solution:

Solution:

Axillary buds of stems get modified into woody, straight and pointed thorns. Thorns are found in many plants such as Citrus and Bougainvillea.

Question17

Which one of the following plants shows vexillary aestivation and diadelphous stamens?
[NEET-2022]

Options:

A. Colchicum autumnale

B. Pisum sativum

C. Allium cepa

D. Solanum nigrum

Answer: B

Solution:

• Vexillary aestivation and diadelphous stamens are the characteristic features of family Fabaceae.

• Pisum sativum (garden pea) belongs to family Fabaceae.

• Allium cepa (onion) and Colchicum autumnale (colchicine) belong to family Liliaceae.

• Solanum nigrum belongs to Solanaceae

Question18

The flowers are Zygomorphic in:
(a) Mustard
(b) Gulmohar
(c) Cassia
(d) Datura
(e) Chilly
Choose the correct answer from the options given below:
[NEET-2022]

Options:

A. (a), (b), (c) Only

B. (b), (c) Only

C. (d), (e) Only

D. (c), (d), (e) Only

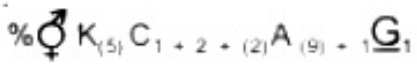
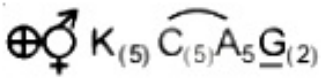
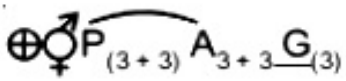
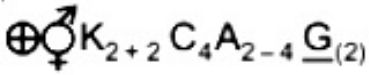
Answer: B

Solution:

When a flower can be divided into two similar halves only in one particular vertical plane, it is zygomorphic for e.g. pea, gulmohar, bean, Cassia. Mustard, Datura and Chilli show actinomorphic flowers.

Question19

Match Column-I with Column-II

	Column-I		Column-II
(a)		(i)	Brassicaceae
(b)		(ii)	Liliaceae
(c)		(iii)	Fabaceae
(d)		(iv)	Solanaceae

Select the correct answer from the options given below. [NEET 2021]

Options:

A. (a)-(iii) (b)-(iv) (c)-(ii) (d)-(i)

B. (a)-(i) (b)-(ii) (c)-(iii) (d)-(iv)

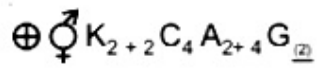
C. (a)-(ii) (b)-(iii) (c)-(iv) (d)-(i)

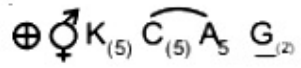
D. (a)-(iv) (b)-(ii) (c)-(i) (d)-(iii)

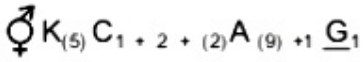
Answer: A

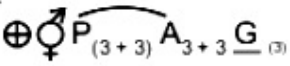
Solution:

The floral formula of

Brassicaceae family – 

Solanacae family – 

Fabaceae family – 

Liliaceae family – 

So a(iii), b(iv), c(ii), d(i) is correct matching.

Question20

Ray florets have
[NEET 2020]

Options:

A. Superior ovary

B. Hypogynous ovary

C. Half inferior ovary

D. Inferior ovary

Answer: D

Solution:

Solution:
(d) Ray floret have inferior ovary. Ray floret is condition in flower where any of a number of strap-shaped and typically sterile florets that form the ray e.g., Sunflower Epigynous flower are formed in family Asteraceae.
Neuter flowers have undeveloped or nonfunctional sexual organs. They have pistils and stamens that are nonfunctional or absent. Ray florets of sunflower are neuter flowers; disc florets are bisexual, also in some more Asteraceae, e.g. Centaurea.

Question21

The ovary is half inferior in :
[2020]

Options:

A. Mustard

B. Sunflower

C. Plum

D. Brinjal

Answer: C

Solution:

(c) The ovary is half inferior in Plum. A half-inferior ovary is embedded or surrounded by the receptacle. Such flowers are termed perigynous or half-epigynous. In some classifications, half-inferior ovaries are not recognized and are instead grouped with either the superior or inferior ovaries.

Question22

Match the placental types (column-I) with their examples (column-II). Choose the correct answer from the following options :

Column-I	Column-II
(A) Basal	(i) Mustard
(B) Axile	(ii) China rose
(C) Parietal	(iii) Dianthus
(D) Free central	(iv) Sunflower

(2019)

Options:

A. (A)-(iii), (B)-(iv), (C)-(i), (D)-(ii)

B. (A)-(ii), (B)-(iii), (C)-(iv), (D)-(i)

C. (A)-(i), (B)-(ii), (C)-(iii), (D)-(iv)

D. (A)-(iv), (B)-(ii), (C)-(i), (D)-(iii)

Answer: D

Solution:

Basal : Sunflower
Axile: China rose
Parietal: Mustard
Free central : Dianthus
In flowering plants, placentation is the attachment of ovules inside the ovary. The ovules inside a flower's ovary (which later become the seeds inside a fruit) are attached via funiculi, the plant part equivalent to an umbilical cord. The part of the ovary where the funiculus attaches is referred to as the placenta.

Question23

Bicarpellary ovary with obliquely placed septum is seen in :

[2019]

Options:

A. Sesbania

B. Brassica

C. Aloe

D. Solanum

Answer: D

Solution:

Solution:
(d) Bicarpellary ovary with obliquely placed septum is seen in the members of family Solanaceae.
e.g. Solanum tuberosum

Question24

Placentation, in which ovules develop on the inner wall of the ovary or in peripheral part, is:
[2019]

Options:

A. Basal

B. Axile

C. Parietal

D. Free central

Answer: C

Solution:

(c) In parietal placentation the ovules develop on the inner wall of ovary or in peripheral part and number of placentae corresponds to the number of carpels. It occurs in bicarpellary or multicarpellary but unilocular ovary, e.g. mustard, Argemone etc.

Parietal placentation

Question25

Pneumatophores occur in [2018]

Options:

A. Halophytes

B. Free-floating hydrophytes

C. Submerged hydrophytes

D. Carnivorous plants

Answer: A

Solution:

Solution:
(a) Some lateral roots of mangroves become specialised as pneumatophores in saline mud flats. These are lateral roots that grow upward (negative geotropism) for varying distances and function as the site of oxygen intake for the submerged primary root system.

Question26

Winged pollen grains are present in [2018]

Options:

A. Mustard

B. Cycas

C. Pinus

D. Mango

Answer: C

Solution:

Solution:
(c) Winged pollen grains are present in Pinus. Each pollen grain has two wing-like structures which enables it to float in air, as an adaptation for dispersal by the wind.

Question27

Coconut fruit is a
(NEET 2017)

Options:

A. berry

B. nut

C. capsule

D. drupe.

Answer: D

Solution:

Solution:
(d) : Coconut fruit is fibrous drupe with a fibrous mesocarp.

Question28

In Bougainvillea, thorns are the modifications of
(NEET 2017)

Options:

A. adventitious root

B. stem

C. leaf

D. stipules.

Answer: B

Question29

The morphological nature of the edible part of coconut is
(NEET 2017)

Options:

A. cotyledon

B. endosperm

C. pericarp

D. perisperm.

Answer: B

Question30

The term 'polyadelphous' is related to (NEET II 2016)

Options:

A. gynoecium

B. androecium

C. corolla

D. calyx.

Answer: B

Solution:

Solution:
(b) : Polyadelphous condition represents cohesion of stamens. In this condition stamens of a flower are fused by their filaments only to form many groups, e.g., Citrus.

Question31

How many plants among Indigofera, Sesbania, Salvia, Allium, Aloe, mustard, groundnut, radish, gram and turnip have stamens with different lengths in their flowers? (NEET II 2016)

Options:

A. Three

B. Four

C. Five

D. Six

Answer: B

Solution:

Families of the given plants :
Indigofera: Fabaceae
Sesbania: Fabaceae
Salvia: Lamiaceae
Allium: Liliaceae
Aloe: Liliaceae
Mustard: Brassicaceae
Groundnut: Fabaceae
Radish: Brassicaceae
Gram: Fabaceae
Turnip: Brassicaceae
The family having different length stamens in their flower is Brassicaceae and Lamiaceae.
we are provided with four plants belonging to the above two mentioned families. So, Salvia, Mustard, radish and gram will have unequal length of stamens.
So, the correct answer is 'Four'.

Question32

Radial symmetry is found in the flowers of (NEET II 2016)

Options:

A. Brassiea

B. Trifolium

C. Pisum

D. Cassia.

Answer: A

Solution:

Solution:
(a): The flowers of Brassica are radially symmetrical whereas flowers of Trifolium, Pisum and Cassia are zygomorphic.

Question33

Free-central placentation is found in (NEET II 2016)

Options:

A. Dianthus

B. Argemone

C. Brassica

D. Citrus.

Answer: A

Solution:

Solution:
(a): Free central placentation is found in Dianthus. Parietal placentation is present in Argemone and Brassica whereas Citrus has axile placentation in ovary.

Question34

Which of the following is not a stem modification? (NEET I 2016)

Options:

A. Tendrils of cucumber

B. Flattened structures of Opuntia

C. Pitcher of Nepenthes

D. Thorns of citrus

Answer: C

Solution:

(c) : Pitcher of Nepenthes is a modification of leaf. In Nepenthes, the pitchers are meant for catching and digesting insects. The lamina is modified into pitcher. The leaf apex gives rise to a coloured lid for attracting the insects.

Question35

Stems modified into flat green organs performing the functions of leaves are known as (NEET I 2016)

Options:

A. phylloclades

B. scales

C. cladodes

D. phyllodes.

Answer: A

Solution:

(a): Phylloclades are flattened green stems which have taken over the function of photosynthesis while cladodes are only the branches of stem that are modified to take over the function of leaves. Cladodes may not be flattened as in Ruscus aculeatus , cladodes are leaf-like with spiny tip whereas in Asparagus, they are slightly flattened, fleshy, straight or curved pointed structures which develop in clusters in the axil of scale leaves.

Question36

Cotyledon of maize grain is called (NEET I 2016)

Options:

A. coleoptile

B. scutellum

C. plumule

D. coleorhiza.

Answer: B

Question37

Tricarpellary, syncarpous gynoecium is found in flowers of (NEET I 2016)

Options:

A. Fabaceae

B. Poaceae

C. Liliaceae

D. Solanaceae

Answer: C

Solution:

(c) : Members of Liliaceae possess tricarpellary, syncarpous gynoecium with superior ovary. The ovary is trilocular with two to many ovules in each loculus.

Question38

The standard petal of a papilionaceous corolla is also called (NEET I 2016)

Options:

A. vexillum

B. corona

C. carina

D. pappus.

Answer: A

Solution:

Solution:
(a): The posterior large bilobed petal of a papilionaceous corolla is called standard or vexillum. It overlaps the two smaller lateral petals known as wings or alae.

Question39

The wheat grain has an embryo with one large, shield shaped cotyledon known as (2015)

Options:

A. scutellum

B. coleoptile

C. epiblast

D. coleorhiza.

Answer: A

Solution:

(a) : The seeds of monocotyledonous plants have only one cotyledon. In family Poaceae (e.g., wheat, maize etc.), this cotyledon is called scutellum, situated towards lateral side of embryonal axis. It provides nourishment to the developing embryo.

Question40

Among China rose, mustard, brinjal, potato, guava, cucumber, onion and tulip, how many plants have superior ovary? (2015)

Options:

A. Three

B. Four

C. Five

D. Six

Answer: D

Solution:

(d) : China rose, mustard, brinjal, potato, onion and tulip are the plants that have superior ovary whereas in guava and cucumber, ovary is inferior.

Question41

Axile placentation is present in (2015)

Options:

A. pea

B. Argemone

C. Dianthus

D. lemon.

Answer: D

Solution:

(d) : Axile placentation occurs in syncarpous pistils. The ovary is partitioned into two or more chambers. Placentae occur in the central region where the septa meet so that an axile column bearing ovules is formed e.g., shoe flower (pentalocular), lemon (multilocular), etc.

Question42

Roots play insignificant role in absorption of water in (2015)

Options:

A. pea

B. wheat

C. sunflower

D. Pistia

Answer: D

Solution:

(d) : Pistia (water lettuce) is a floating aquatic plant. In aquatic plants, roots are generally poorly developed and do not take part in absorption of water. Water is absorbed by the general body surface in these plants.

Question43

Is the floral formula of (2015 cancelled)

Options:

A. Petunia

B. Brassica

C. Allium

D. Sesbania.

Answer: A

Solution:

(a): The given floral formula is of Family Among the given options, only Petunia belongs to Family Solanaceae. Allium is a member of Family Liliaceae, Sesbania is of Family Leguminosae and Brassica is a member of Family Brassicaceae or Cruciferae.

Question44

Perigynous flowers are found in (2015 cancelled)

Options:

A. China rose

B. rose

C. guava

D. cucumber.

Answer: B

Solution:

Solution:
(b) : If gynoecium is situated in the centre and other parts of the flower are located on the rim of the thalamus almost at the same level, it is called perigynous. The ovary here is said to be half inferior,e.g., plum, rose, peach.

Question45

Keel is the characteristic feature of flower of (2015 cancelled)

Options:

A. Aloe

B. tomato

C. tulip

D. Indigofera.

Answer: D

Solution:

(d) : The flowers of Family Papilionaceae have butterfly shaped corolla (papilionaceous corolla). Posterior or outermost petal is the largest and is called standard or vexillum, two lateral petals are similar and generally clawed, are called wings or alae and the two anterior petals called keel are fused enclosing stamens and carpels. This type of petal arrangement is found in bean, gram, pea, Indigofera etc.

Question46

Leaves become modified into spines in

(2015 cancelled)

Options:

A. onion

B. silk cotton

C. Opuntia

D. pea.

Answer: C

Solution:

Solution:
(c) : In xerophytic plants, the leaves modify into sharp, pointed spines e.g. Aloe, Solanum surattense, Opuntia, Asparagus etc. This modification is either for protection of plant or to lessen transpiration, or for both.

Question47

Placenta and pericarp are both edible portions in (2014)

Options:

A. apple

B. banana

C. tomato

D. potato.

Answer: C

Solution:

(c) : A true fruit consists of a pericarp (fruit wall) formed from ovary wall and seeds formed from ovules. Pericarp is divisible into epicarp, mesocarp and endocarp. Tomato is a berry fruit derived from bicarpellary, syncarpous, bi-to tetralocular ovary with swollen placentae. Berry consists of a membranous skin represented by epicarp. Mesocarp is the middle fleshy part. Endocarp, septa and placentae are pulpy and edible. All parts of the fruit, except the small seeds, are edible.

Question48

When the margins of sepals or petals overlap one another without any particular direction, the condition is termed as (2014)

Options:

A. vexillary

B. imbricate

C. twisted

D. valvate.

Answer: B

Solution:

Solution:
(b) : Aestivation is the arrangements of accessory floral organs (sepals or petals) in relation to one another in floral bud. It may be of open, valvate, twisted or imbricate type. In imbricate aestivation there is an irregular overlapping of petals by one another. It has three subtypes besides imbricate proper i.e., quincuncial, ascending imbricate and descending imbricate or vexillary. Cassia, Pisum, etc., show imbricate aestivation.

Question49

Which one of the following statements is correct? (2014)

Options:

A. The seed in grasses is not endospermic.

B. Mango is a parthenocarpic fruit.

C. A proteinaceous aleurone layer is present in maize grain.

D. A sterile pistil is called a staminode.

Answer: C

Solution:

Solution:
(c) : Grass seeds are endospermic. Mango is a seeded fruit. A sterile pistil is called pistillode and a sterile stamen is called staminode. Maize grains consist of fruit wall, seed coat, endosperm and embryo. The endosperm occupies most of the grains interior and consists of two parts, horny aleurone layer and mainly storage layers. The aleurone layer lies immediately below the grain covering and is 1-3 cell thick. Aleurone cells are thick walled with cytoplasm filled with aleurone grains which produce enzymes during seed germination to mobilise stored nutrients.

Question50

An example of edible underground stem is (2014)

Options:

A. carrot

B. groundnut

C. sweet potato

D. potato.

Answer: D

Solution:

Solution:
(d) : Carrot and sweet potato are root modifications while edible part of groundnut is seeds. Potato is an edible underground stem.

Question51

Among bitter gourd, mustard, brinjal, pumpkin, china rose, lupin, cucumber, sunhemp, gram, guava, bean, chilli, plum, petunia, tomato, rose, Withania, potato, onion, aloe and tulip how many plants have hypogynous flower?
(NEET 2013)

Options:

A. Fifteen

B. Eighteen

C. Six

D. Ten

Answer: A

Solution:

Solution:
(a) : In the hypogynous flower the gynoecium occupies the highest position while the other parts are situated below it. The ovary in such flowers is said to be superior, e.g., mustard, China rose and brinjal. All the given plants except bitter gourd, pumpkin, cucumber, guava, plum and rose have hypogynous flower.

Question52

In China rose the flowers are
(NEET 2013)

Options:

A. zygomorphic, hypogynous with imbricate aestivation

B. zygomorphic, epigynous with twisted aestivation

C. actinomorphic, hypogynous with twisted aestivation

D. actinomorphic, epigynous with valvate aestivation

Answer: C

Solution:

Solution:
(c) : In China rose the flowers are actinomorphic i.e., it can be divided into two equal radial halves in any radial plane passing through the centre, they are hypogynous, i.e., the gynoecium occupies the highest position, while the other parts are situated below it; they have twisted aestivation i.e., one margin of petal overlaps that of the next one and so on.

Question53

Among flowers of Calotropis, tulip, Sesbania, Asparagus, Colchicum, sweet pea, Petunia, Indigofera, mustard, soybean, tobacco and groundnut, how many plants have corolla with valvate aestivation? (KN NEET 2013)

Options:

A. Six

B. Seven

C. Eight

D. Five

Answer: B

Solution:

Solution:
(b) : The mode of arrangement of the sepals or petals with respect to one another in the floral bud is termed as aestivation. Aestivation is of different types valvate, twisted or contorted, imbricate, quincuncial, vexillary, convolute, and plicate. In valvate aestivation, sepals or petals or tepals just touch each other without any overlapping. Calotropis, tulip, Asparagus, Colchicum, Petunia, mustard and tobacco have valvate aestivation.

Question54

Inflorescence is racemose in (KN NEET 2013)

Options:

A. brinjal

B. tulip

C. aloe

D. soybean.

Answer: D

Solution:

Solution:
(d) : Racemose inflorescence is also called indefinite and indeterminate type. Growth of the peduncle is indefinite. Here the terminal bud will not modify into a flower. Flowers develop in acropetal succession i.e., mature flowers are towards the base and the younger ones towards the tip of the peduncle. Flowers open in centripetal succession i.e., opening of flowers proceeds from the periphery to the centre of the inflorescence. Peduncle may be unbranched or branched. Soybean belongs to family Fabaceae which has racemose inflorescence.

Question55

In a cymose inflorescence the main axis
(KN NEET 2013)

Options:

A. has unlimited growth

B. bears a solitary flower

C. has unlimited growth but lateral branches end in flowers

D. terminates in a flower.

Answer: D

Solution:

Solution:
(d) : Cymose inflorescence is also called definite or determinate inflorescence. Growth of the peduncle is definite. Here, the terminal bud is modified into a flower. Flowers develop in basipetal succession, i.e. mature flowers are towards the apex and young flower buds are towards the base. Flowers open in centrifugal sequence, i.e., flowers open from centre to the periphery of the inflorescence e.g., Solanum, Ranunculus, Datura, Gossypium, etc.

Question56

How many plants among China rose, Ocimum, sunflower, mustard, Alstonia, guava, Calotropis and Nerium (oleander) have opposite phyllotaxy?
(KN NEET 2013)

Options:

A. Three

B. Four

C. Five

D. Two

Answer: A

Solution:

Solution:
(a) : In opposite phyllotaxy, two leaves are borne on the opposite sides of a single node. It is of two types;
(a) opposite and superposed,
(b) opposite and decussate. Ocimum, guava and Calotropis have opposite decussate phyllotaxy.

Question57

Placentation in tomato and lemon is (2012)

Options:

A. parietal

B. free central

C. marginal

D. axile.

Answer: D

Solution:

Solution:
(d) : Placentation is the arrangement of ovules within the ovary. It is of different types namely, marginal (pea), parietal (mutstard, Argemone), axile (China rose, tomato, lemon) and free central (Dianthus, Primrose).

Question58

Cymose inflorescence is present in (2012)

Options:

A. Solanum

B. Sesbania

C. Trifolium

D. Brassica.

Answer: A

Solution:

Solution:
Cymose sort of inflorescence is one during which the tip of the most axis ends in an exceedingly flower. This kind of inflorescence is seen in Solanum, wherever the flowers are born in an exceedingly single plane.

Question59

Phyllode is present in (2012)

Options:

A. Asparagus

B. Euphorbia

C. Australian Acacia

D. Opuntia.

Answer: C

Solution:

Solution:
(c): In several species of Acacia found in the deserts of Australia the bipinnate lamina is absent. Instead petiole and part of the rachis become flattened into sickle-shaped structure for performing the function of food synthesis. Such a flattened petiole which carries out the functions of the lamina is called phyllode. Formation of phyllode is a mechanism to reduce transpiration because (i) it is vertically placed and (ii) has fewer stomata.

Question60

The gynoecium consists of many free pistils in flowers of (2012)

Options:

A. Aloe

B. tomato

C. Papaver

D. Michelia.

Answer: D

Solution:

Solution:
(d) : Gynoecium is the female reproductive organ of a flower. It may be apocarpous (pistils separated) e.g., Michelia or syncarpous (fused) e.g., tomato.

Question61

How many plants in the list given below have composite fruits that develop from an inflorescence? Walnut, poppy, radish, fig, pineapple, apple, tomato, mulberry.
(2012)

Options:

A. Four

B. Five

C. Two

D. Three

Answer: D

Solution:

Solution:
(d) : A composite or multiple fruit is a group of fruitlets which develop from the different flowers of an inflorescence. It is of two main types, sorosis (e.g., mulberry, pineapple, jack fruit) and syconus (e.g., peepal, banyan, fig, etc.)

Question62

The coconut water and the edible part of coconut are equivalent to (2012)

Options:

A. endosperm

B. endocarp

C. mesocarp

D. embryo.

Answer: A

Solution:

Solution:
(a): Coconut fruit is a drupe. It has a membranous epicarp, fibrous mesocarp and stony endocarp. The endocarp encloses a single seed with brown testa that contains a small embryo and a white oily endosperm (edible part) with watery fluid called coconut water.

Question63

Vexillary aestivation is characteristic of the family (2012)

Options:

A. Fabaceae

B. Asteraceae

C. Solanaceae

D. Brassicaceae.

Answer: A

Solution:

Solution:
(a): Vexillary or descending imbricate aestivation is a characteristic of family Fabaceae. In it, the posterior largest petal (standard) overlaps two lateral petals (wings) which in turn overlap two anterior petals (keel). It is also called pailionaceous corolla.

Question64

Which one of the following organisms is correctly matched with its three characteristics? (Mains 2012)

Options:

A. Pea: C_3 pathway, endospermic seed, vexillary aestivation

B. Tomato: twisted aestivation, axile placentation, berry

C. Onion: bulb, imbricate aestivation, axile placentation

D. Maize: C_3 pathway, closed vascular bundles, scutellum fains

Answer: C

Question65

How many plants in the list given below have marginal placentation? Mustard, Gram, Tulip, Asparagus, Arhar, Sun hemp, Chilli, Colchicum, Onion, Moong, Pea, Tobacco, Lupin (Mains 2012)

Options:

A. Four

B. Five

C. Six

D. Three

Answer: C

Solution:

Solution:
(c) : Gram, arhar, sunhemp, moong, pea and lupin belong to Family Fabaceae which is characterized by marginal placentation.

Question66

Which one of the following statements is correct? (2011)

Options:

A. In tomato, fruit is a capsule.

B. Seeds of orchids have oil-rich endosperm.

C. Placentation in primose is basal.

D. Flower of tulip is a modified shoot.

Answer: D

Solution:

(d) : Tulip is the common name for any member of the thousands of varieties and about 100 species of bulbous perennial plants comprising the genus Tulipa of the flowering plant Family Liliaceae. A bulb is an underground vertical shoot that has modified shoot (or thickened leaf bases). As flower is regarded as a modified stem with shortened internodes and bearing at its nodes and structures that may be highly modified leaves. A flower structure forms on a modified shoot or axis with an apical meristem that does not grow continuously.

Question67

The correct floral formula of chilli is (2011)

Options:

A.

$$\oplus \, ♀ \, K_{(5)} \, C_5 \, A_5 \, \underline{G}_{(2)}$$

B.

$$\oplus \, ♀ \, K_{(5)} \, \overbrace{C_{(5)} \, A_5} \, \underline{G}_{(2)}$$

C.

$$\oplus \, ♀ \, K_{(5)} \, C_{(5)} \, A_{(5)} \, \underline{G}_2$$

D.

$$\oplus \, ♀ \, K_5 \, \overbrace{C_5 \, A_{(5)}} \, \underline{G}_2 .$$

Answer: B

Solution:

Solution:
41. (b) : Chilli is the member of Solanaceae, in which flowers are bisexual (♀), actinomorphic (⊕); calyx -5 and gamosepalous, corolla -5 and gamopetalous ; androecium -5, free, epipetalous basifixed, inferior; gynoecium - bicarpellary, syncarpous and ovary superior. So, floral formula of chilli is

$$\oplus \, ♀ \, K_{(5)} \, \overbrace{C_{(5)} \, A_5} \, \underline{G}_{(2)}$$

Question68

Flowers are zygomorphic in (2011)

Options:

A. mustard

B. gulmohur

C. tomato

D. Datura.

Answer: B

Solution:

Solution:
(b) : Flowers of gulmohur have bilateral symmetry. So, they are called zygomorphic. Datura, mustard and tomato have actinomorphic flowers.

Question69

The ovary is half inferior in flowers of (2011)

Options:

A. peach

B. cucumber

C. cotton

D. guava.

Answer: A

Solution:

Solution:
(a) : If gynoecium is situated in the centre and other parts of the flower are located on the rim of the thalamus almost at the same level, it is called perigynous. The ovary here is said to be half inferior,e.g., plum, rose, peach.

Question70

A drupe develops in (2011)

Options:

A. mango

B. wheat

C. pea

D. tomato.

Answer: A

Solution:

Solution:
(a) : Drupe is a fleshy fruit that develops from either one or several fused carpels and contains one or many seeds. The seeds are enclosed by the hard protective endocarp (pericarp) of the fruit, e . g. mango. In mango the pericarp is well differentiated into an outer thin epicarp, a middle fleshy edible mesocarp and an inner stony hard endocarp.

Question71

Which one of the following pairs is wrongly matched while the remaining three are correct?
(Mains 2011)

Options:

A. Penicillium -conidia

B. Water hyacinth - runner

C. Bryophyllum -leaf buds

D. Agave -bulbils

Answer: B

Solution:

Solution:
(b) : The examples of runners are doob grass, Oxalis, Centella etc. These plants have long and thin internodes and branches creep over the surface of soil. Such plants develop adventitious roots at nodes on lower side. When long branches breakup by any method they form new plants. Water hyacinth (Eichhornia) is the example of offset. This is sub aerial modification of stem. It is like runner but internodes are thick and short.

Question72

Which one of the following figures represents the placentation in Dianthus?

(a)  (b) 

(c)  (d) 

(Mains 2011)

Options:

A. (a)

B. (b)

C. (c)

D. (d)

Answer: B

Solution:

Solution:
(b) : The figure given in option (b) represents the free central placentation. In free central placentation, ovary is unilocular and ovules are borne on the axis in the center of the ovary and septa are absent. It is seen in Dianthus and Primrose.

Question73

Whorled, simple leaves with reticulate venation are present in (Mains 2011)

Options:

A. Calotropis

B. neem

C. China rose

D. Alstonia.

Answer: D

Solution:

(d) : In Alstonia, five or more leaves arises from each node, so it shows whorled phyllotaxy. The leaves are leathery, sessile, simple which are elliptical or ovate or wedge shaped at the base. It is used in traditional medicines.

Question74

Sweet potato is homologous to (Mains 2011)

Options:

A. potato

B. Colocasia

C. ginger

D. turnip.

Answer: D

Solution:

Solution:
(d) : Sweet potato is homologous to turnip as both are having same origin i.e., both are root but modified for different functions. Sweet potato is a modified root for storage and vegetative propagation while turnip is modified for storage only.

Question75

In unilocular ovary with a single ovule, the placentation is (2010)

Options:

A. marginal

B. basal

C. free central

D. axile.

Answer: B

Solution:

(b): In basal type of placentation the ovary is unilocular and ovules and generally reduced to one borne at the base of the ovary, e.g., compositae.

Question76

Keel is characteristic of the flowers of (2010)

Options:

A. gulmohur

B. Cassia

C. Calotropis

D. bean.

Answer: D

Solution:

Solution:
(d): The flowers of Family Papilionaceae have butterfly shaped corolla (papilionaceous corolla). Posterior or outermost petal is the largest and is called standard or vexillum, two lateral petals are similar and generally clawed, are called wings or alae and the two anterior petals called keel are fused enclosing stamens and carpels. This type of petal arrangement is found in bean, gram, pea, Indigofera etc.

Question77

Ovary is half-inferior in the flowers of (2010)

Options:

A. guava

B. plum

C. brinjal

D. cucumber.

Answer: B

Solution:

If gynoecium is situated in the centre and other parts of the flower are located on the rim of the thalamus almost at the same level, it is called perigynous. The ovary here is said to be half inferior,e.g., plum, rose, peach.

Question78

The technical term used for the androecium in a flower of China rose (Hibiscus rosa sinensis) is
(2010)

Options:

A. monadelphous

B. diadelphous

C. polyandrous

D. polyadelphous.

Answer: A

Solution:

Solution:
(a) : China rose of Family Malvaceae possess numerous stamens. The filaments of stamens are united in one group thus forming a staminal tube around the style. Such stamens are called monadelphous.

Question79

The scutellum observed in a grain of wheat or maize is comparable to which part of the seed in other monocotyledons?
(2010)

Options:

A. Cotyledon

B. Endosperm

C. Aleurone layer

D. Plumule

Answer: A

Solution:

Solution:
(a): Scutellum is the tissue in a grass or wheat or maize seed that lies between the embryo and the endosperm. It is the modified cotyledon, being specialized for the digestion and absorption of the endospserm.

Question80

Which one of the following is a xerophytic plant in which the stem is

modified into the flat green and succulent structure?
(Mains 2010)

Options:

A. Opuntia

B. Casuarina

C. Hydrilla

D. Acacia

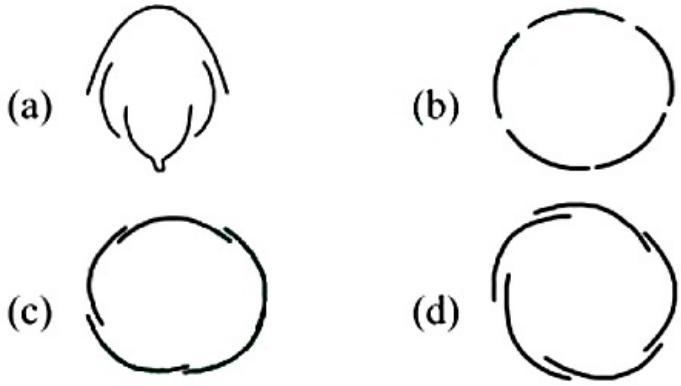
Answer: A

Solution:

Solution:
(a): Opuntia is a xerophytic plant which lives in dry habitat. The plant has fleshy organs where water and mucilage are stored. The stem is modified into flat green structure, therefore, Opuntia is also called as phylloclades.

Question81

Aestivation of petals in the flower of cotton is correctly shown in



(Mains 2010)

Options:

A. (a)

B. (b)

C. (c)

D. (d)

Answer: D

Solution:

(d) : In cotton, china rose and lady's finger margins of sepals or petals overlap that of the next one this mode of arrangement (aestivation) is called twisted.

Question82

The correct floral formula of soyabean is (2010)

Options:

A. (a)

B. (b)

C. (c)

D. (d)

Answer: C

Solution:

Solution:
(c) : The plants belonging to the Family Fabaceae such as soyabean, pea, sem, moong, gram, etc have the floral formula

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Question83

Consider the following four statements (i), (ii),(iii) and (iv) and select the right option for two correct statements.

Statements :
(i) In vexillary aestivation, the large posterior petal is called-standard, two lateral ones are wings and two small anterior petals are termed keel.
(ii) The floral formula for Liliaceae is

$$\oplus \male\female P_{3+3}\, A_{3+3} + \underline{G}_{3}.$$

(iii) In pea flower the stamens are monadelphous.
(iv) The floral formula for Solanaceae is

$$\oplus \male\female K_{(3)}\, C_{(3)}\, A_{(4)} + \underline{G}_{(2)}$$

The correct statements are (Mains 2010)

Options:

A. (i) and (iii)

B. (i) and (ii)

C. (ii) and (iii)

D. (iii) and (iv).

Answer: B

Solution:

In monadelphous stamens, the filaments of all stamens are united forming a single bundle but the anthers are free, e.g., cotton, lady's finger. Diadelphous stamens have filaments united forming two bundles and anthers are free eg. gram, pea, bean. Vexillary aestivation has papilionaceous corolla which has a large posterior petal is called-standard, two lateral ones are wings and two small anterior petals are termed keel. The floral formula for Liliaceae is $P_{(3+3)}$ or $_{3+3}$,A_{3+3}, $G_{(3)}$. Solanaceae floral formula is $K_{(5)}\{C_{(5)}A_5\}G_{(2)}$

Question84

The floral formula of
(2009)

Options:

A. soybean

B. sunhemp

C. tobacco

D. tulip.

Answer: C

Solution:

Solution:
(c) : The floral formula of tobacco is
It belongs to the family Solanaceae. The flower is actinomorphic, bisexual, 5 sepals gamosepalous, 5 gamopetalous corolla, 5 epipetalous stamens and 2 carpels syncarpous having superior ovary.

Question85

A fruit developed from hypanthodium inflorescence is called
(2009)

Options:

A. sorosis

B. syconus

C. caryopsis

D. hesperidium.

Answer: B

Solution:

(b) : Syconous fruit develops from a hypanthodium inflorescence, e.g., Ficus. Hypanthodium is a box like inflorescence where the box is formed by the flesly receptacle. It opens to exterior by a single pore called ostiole. The hollow pear shaped fleshy receptacle encloses a number of minute male and female flowers, it becomes fleshy and forms the fruit.

Question86

An example of axile placentation is (2009)

Options:

A. Dianthus

B. lemon

C. marigold

D. Argemone.

Answer: B

Solution:

Solution:
Axile placentation is found in multi carpellary syncarpous gynoecium. The margin of carpels growing inward, fuse and meet in the centre of the ovary. Axis forms in the centre of the ovary, thus ovary becomes multi-chambered. The ovules are borne at the central axis. The number of these chambers are equal to the number of carpels. For example, potato, china rose, onion, lemon, orange and tomato.
Therefore, the correct answer is option B.
Lemon (Citrus sp) belongs to family - Rutaceae, Characterised by axile placentation.
Argemone belong to family- Papaveraceae, containds paritel .
Dianthus belongs to placentation.
Margoid belongs to family- Asteraceae, contains basal placentation

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Question87

Cotyledons and testa respectively are edible parts in (2009)

Options:

A. walnut and tamarind

B. french bean and coconut

C. cashew nut and litchi

D. groundnut and pomegranate.

Answer: D

Solution:

(d) : Groundnut is dry, one chambered, one seeded fruit developing from a superior bi or poly carpellary ovary. The edible part is cotyledons and embryo lobe. Pomegranate is balausta type of fruit. The fruits develop from multilocular syncarpous inferior ovary. Testa is fleshy & edible.

Question88

An example of a seed with endosperm, perisperm, and caruncle is (2009)

Options:

A. coffee

B. lily

C. castor

D. cotton.

Answer: C

Solution:

Solution:
(c) : In castor seed testa and tegmen are united together. Seed coat is tough and bright due to scleroprotein. Over narrower end a brownish pad is found which is called caruncle. Caruncle is carbohydrate in nature. This protects micropyle and develops as an integumental outgrowth after fertilization.Below seed coat a very thin membrane is found over kernel and called perisperm (the persistant nucellus).Below perisperm there is a large, white, swollen and oily mass called endsoperm.

Question89

The fleshy receptacle of syconus of fig encloses a number of (2008)

Options:

A. berries

B. mericarps

C. achenes

D. samaras.

Answer: C

Solution:

Solution:
(c): Syconus develop from hypanthodium type of inflorescence. The flask shaped fleshy receptacle encloses female flower which produces small achene like fruitlets and has a small pore protected by scale leaves. Example : syconus of fig (Ficus carica).

Question90

Dry indehiscent single-seeded fruit formed from bicarpellary syncarpous inferior ovary is
(2008)

Options:

A. berry

B. cremocarp

C. caryopsis

D. cypsella.

Answer: D

Solution:

Solution:
(d) : Cypsella is a dry, one chambered, one seeded fruit developing from an inferior, bicarpellary ovary, e.g., sunflower, marigold, cosmos, etc. Caryopsis or grain is a small, dry one seeded fruit developing from superior monocarpellary ovary. Pericarp fused with is a bilocular, two seeded fruit developing from an inferior bicarpellary ovary. It is characteristic fruit of umbelliferae, e.g., Coriander, Cuminum, etc. Berry or bacca develops from mono or multicarpellary superior or inferior syncarpous ovary with axile or parietal placentation, e.g., tomato, banana, brinjal, guava, grapes etc.

Question91

Replum is present in the ovary of flower of
(2008)

Options:

A. sun flower

B. pea

C. lemon

D. mustard.

Answer: D

Solution:

Solution:
(d) : Replum is a false septum formed due to the ingrowth of parietal placenta. This makes the ovary bilocular. It is mainly seen in the ovary of flowers of Brassicaceae (Cruciferae) Family e.g., mustard, candytuft etc.

Question92

The fruit is chambered, developed from inferior ovary and has seeds with succulent testa in (2008)

Options:

A. guava

B. cucumber

C. pomegranate

D. orange.

Answer: C

Solution:

Solution:
(c) : In pomegranate, the whole fruit is covered by a hard rind made up of exocarp and a part of mesocarp. It develops from multilocular syncarpous inferior ovary. Mesocarp forms plate like infolding (i.e. chambered) and the seeds are covered by endocarp and contain bright red succulent testa.

Question93

Endosperm is consumed by developing embryo in the seed of (2008)

Options:

A. pea

B. maize

C. coconut

D. castor.

Answer: A

Solution:

Solution:
(a): During the process of the development of the embryo, the food stored up in the endosperm is continuously drawn up by the developing embryo and thus completely exhausted. Such seeds are known as exalbuminous or non-endospermic. The common examples are : exalbuminous - gram, pea, bean, tamarind, orchid, etc.

Question94

Which of the following is a flowering plant with nodules containing filamentous nitrogenfixing micro-organism? (2007)

Options:

A. Crotalaria juncea

B. Cycas revoluta

C. Cicer arietinum

D. Casuarina equisetifolia

Answer: D

Solution:

Solution:
(d) : Casuarinaceae is the family of dicotyledonous flowering plants placed in the order Fagales. Casuarina is a member of the family, characterized by drooping equisteoid twigs, are evergreen, and monoecious or dioecious. The roots have nitrogen fixing nodules that contain the soil actinomycetes called Frankia which is filamentous bacteria.

Question95

Pentamerous actinomorphic flowers, bicarpellary ovary with oblique septa, and fruit capsule or berry, are characteristic features of (2006)

Options:

A. Liliaceae

B. Asteraceae

C. Brassicaceae

D. Solanaceae.

Answer: D

Solution:

Solution:
(d) : A pentamerous actinomorphic flower is one where the floral parts are in multiples of five and the flower can be divided into two equal halves in more than one plane. Gynoecium is bicarpellary, syncarpous, forming a superior bilocular ovary. Each locule has many ovule on axileplacentation. Members of solanaceae are characterised by the presence of an obliquely placed septum in the ovary and highly swollen placentae.

Question96

Pineapple (ananas) fruit develops from (2006)

Options:

A. a multilocular monocarpellary flower

B. a unilocular polycarpellary flower

C. a multipistillate syncarpous flower

D. a cluster of compactly borne flowers on a common axis.

Answer: D

Solution:

Solution:
(d) : Pineapple is a sorosis type of fruit that develops from spike or spadix inflorescence. Here the flowers fuse by their succulent tepals and axis bearing the flowers becomes fleshy or woody, thus forming a compact mass. These are composite or multiple fruits. In pineapple fleshy axis, bracts, fused perianth and pericarp are edible.

Question97

In which of the following fruits, the edible part is the aril? (2006)

Options:

A. Litchi

B. Custard apple

C. Pomegranate

D. Orange

Answer: A

Solution:

(a) : In litchi, aril forms the edible part in fruit. It is a collar like out growth from the base of the ovule forming a kind of third integument. Aril is also found in Asphodelus, Trianthema and Ulmus.
Litchi is a nut. In litchi, the epicarp and mesocarp (layers of pericarp) together become leathery and the endocarp is membranous.

Question98

Long filamentous threads protruding at the end of a young cob of maize are
(2006)

Options:

A. hairs

B. anthers

C. styles

D. ovaries.

Answer: C

Solution:

Solution:
(c) : In maize the male inflorescence occupies the terminal position on the main axis, whereas the female inflorescence (ear or cob) is borne on modified lateral branches in the axils of leaves. The ear producing branch has short intenodes and bears a female spike at its apex. Each spikelet has a pair of small membranous glumes and two florets. The feathery styles of the female florets are long and emerge out of the cobs to expose stigma for wind pollination.

Question99

Why is vivipary an undesirable character for annual crop plants?
(2005)

Options:

A. It reduces the vigour of the plant.

B. It adversely affects the fertility of the plant.

C. The seeds exhibit long dormancy.

D. The seeds cannot be stored under normal conditions for the next season.

Answer: D

Solution:

(d) : An annual plant is one that completes its life cycle in a single season i.e., a seed germinates and the mature plant so produced dies, having produced seeds, within the season. Vivipary on the other hand is the phenomenon of germination of seed or spore in situ on mature plant even before it release. It is not possible for annual plants because in these plants, the mature plant cannot store seeds as it dies after producing seeds.

Question100

Which of the following represents the edible part of the fruit of litchi? (2005)

Options:

A. Mesocarp

B. Endocarp

C. Pericarp

D. Juicy aril

Answer: D

Solution:

Solution:
In litchi, aril forms the edible part in fruit. It is a collar like out growth from the base of the ovule forming a kind of third integument. Aril is also found in Asphodelus, Trianthema and Ulmus.
Litchi is a nut. In litchi, the epicarp and mesocarp (layers of pericarp) together become leathery and the endocarp is membranous.

Question101

Edible part of mango is (2004)

Options:

A. endocarp

B. receptacle

C. epicarp

D. mesocarp.

Answer: D

Solution:

(d) : Mango (Mangifera indica) of Family Anacardiaceae is a drupe. The edible part in mango is mesocarp.

Question102

Juicy hair-like structures observed in the lemon fruit develop from (2003)

Options:

A. exocarp

B. mesocarp

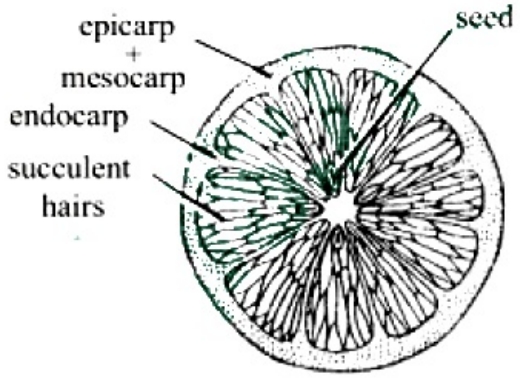
C. endocarp

D. mesocarp and endocarp.

Answer: C

Solution:

(c) : Lemon is a hesperidium type of fruit. It is many chambered fleshy fruit developing from a multicarpellary, syncarpous, multilocular, superior ovary bearing seeds on axile placentation. The leathery epicarp of hesperidium has many glands of aromatic oil. The mesocarp, represented by white fibres, is fused to the epicarp. The epicarp and mesocarp together form the rind. The endocarp is thin and papery. It projects inwards and forms many compartments. The inner wall of endocarp gives out many juicy succulent hairs which form the edible part of the fruit. Hesperidium is a characteristic fruit of the rutaceae; e.g., Citrus aurantifolia (lemon), Citrus reticulata (orange). etc.



Hesperidium of lemon

Question103

Geocarpic fruit is (2002)

Options:

A. potato

B. peanut

C. onion

D. garlic.

Answer: B

Solution:

Solution:
(b) : Peanut is geocarpic fruit.

Question104

Edible part in mango is (2002)

Options:

A. mesocarp

B. epicarp

C. endocarp

D. epidermis.

Answer: A

Solution:

Solution:
Mango (Mangifera indica) of Family Anacardiaceae is a drupe. The edible part in mango is mesocarp.

Question105

Bicarpellary gynoecium and oblique ovary occurs in (2001)

Options:

A. mustard

B. banana

C. Pisum

D. brinjal.

Answer: D

Solution:

(d) : Brinjal or Solanum melongena belongs to family solanaceae. The fruits are rich in iodine. They are used in the form of vegetable. Gynoecium is bicarpellary, syncarpous, forming a superior bilocular Each locule has many ovule on axile placentation. Members of Solanaceae are characterised by the presence of an obliquely placed septum in the ovary and highly swollen placentae. The oblique septum is probably due to shifting in the position of the ovary.

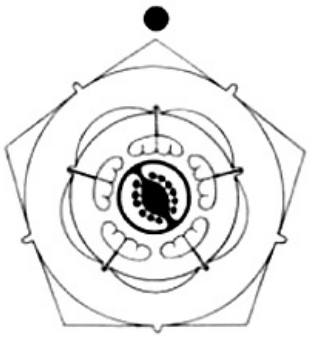


Fig. : Floral diagram of *Solanum nigrum*

Question106

Tetradynamous conditions occur in (2001)

Options:

A. Cruciferae

B. Malvaceae

C. Solanaceae

D. Lilliaceae.

Answer: A

Solution:

Solution:
(a) : In tetradynamous condition there are six stamens, 4 are long and 2 are short i . e., $4 + 2$ arrangement of stamens. It is characteristic feature of Cruciferae members. In Liliaceae 6 stamens are arranged in whorls of 3 each $(3 + 3)$. In Solanaceae there are 5 stamens they are epipetallous and polyandrous. In Malvaceae there are numerous stamens that are monadelphous.

Question107

In which of the following plant sunken stomata are found? (2001)

Options:

A. Nerium

B. Hydrilla

C. Mango

D. Guava

Answer: A

Solution:

Solution:
(a) : Usually the stomata are placed at the same level as the adjoining epidermal cells (e.g., Helianthus, Mangifera). In xerophytes the stomata are sunken as they are located in a cup-shaped depression (e.g., Nerium). It is an adaptation to reduce the loss of water in xerophytic plants.

Question108

What is the eye of potato?
(2001)

Options:

A. Axillary bud

B. Accessory bud

C. Adventitious bud

D. Apical bud

Answer: A

Solution:

Solution:
(a) : A tuber is the swollen tip of the underground branch. Tubers are round or oval in shape. Each tuber has many notches on the surface called 'eyes'. These are in fact axillary buds which grow into new plants during favourable conditions. Unlike other underground stems, tubers do not give off adventitious roots; e.g., Solanum tuberosum (potato).

Question109

Edible part of banana is
(2001)

Options:

A. epicarp

B. mesocarp and less developed endocarp

C. endocarp and less developed mesocarp

D. epicarp and mesocarp.

Answer: C

Solution:

Solution:
(c) : Banana is a berry. It develops from monocarpellary or multicarpellary syncarpous ovary. Epicarp makes the rind of the fruit, mesocarp is fleshy and endocarp is thin and membranous. The edible portion of banana is endocarp and less developedmesocarp.

Question110

Which is correct pair for edible part? (2001)

Options:

A. Tomato-thalamus

B. Maize-cotyledons

C. Guava-mesocarp

D. Date palm-mesocarp

Answer: D

Question111

Which is expressing right appropriate pairing? (2000)

Options:

A. Brassicaceae - sunflower

B. Malvaceae - cotton

C. Papilionaceae - catechu

D. Liliaceae - wheat

Answer: B

Solution:

(b) : Malvaceae is also known as cotton family or mallow family. The plants of this family are cosmopolitan in distribution, although more common in tropical (warm) regions. Gossypium (cotton) is an important genera of this family. Sunflower belongs to family Compositae. Wheat belong to family Poaceae. Catechu belongs to family Mimosaceae.

Question112

Pneumatophores are found in (2000)

Options:

A. the vegetation which is found in marshy and saline lake

B. the vegetation which found in acidic soil

C. xerophytes

D. epiphytes.

Answer: A

Solution:

Solution:
(a) : These special roots, called pneumatophores or knees, develop in mangrove plants, i.e., plants growing in saline marshes. These roots grow vertically upward and are negatively geotropic. Air enters these roots through minute breathing pores called pneumathodes, present on the tips of vertical roots. These plants include Rhizophora, Heritiera, Avicinnia, etc., and are found in Sundarbans of WestBengal.

Question113

Hair found in the inflorescence of Zea mays are the modification of (2000)

Options:

A. style

B. stigma

C. spathe

D. filaments.

Answer: A

Solution:

Solution:
(a) : In maize style is very long. It comes out of the cob to expose stigma for wind pollination. These are collectively known as silk.

Question114

Geocarpic fruits is
(2000)

Options:

A. carrot

B. radish

C. ground nut

D. turnip.

Answer: C

Solution:

Solution:
(c) : Groundnut is geocarpic fruit.

Question115

Angiosperm, to which the largest flowers belong, is
(2000)

Options:

A. total root parasite

B. partial root parasite

C. total stem parasite

D. partial stem parasite.

Answer: A

Solution:

(a) : Rafflesia is a specialised total root parasite as the vegetative parts of its body are reduced and the whole body is within the host root and only structure which is visible outside, is the biggest flower. The diameter of the flower is one meter and its weight is about 10 kg. Its pollination is done by elephant. The flowers are fleshy white and they emit smell, which resembles the smell of decaying meat.

Question116

Floral features are chiefly used in angiosperms identification because (1998)

Options:

A. flowers can be safely pressed

B. reproductive parts are more stable and conservative than vegetative parts

C. flowers are nice to work with

D. flowers are of various colours.

Answer: B

Solution:

Solution:
(b) : Floral features are used to identify because reproductive parts are more stable and conservative than vegetative parts.

Question117

Which plant will lose its economic value, if its fruits are produced by induced parthenocarpy? (1997)

Options:

A. Orange

B. Banana

C. Grape

D. Pomegranate

Answer: D

Solution:

(d) : Development of fruits without fertilization is called parthenocarpy and such fruits are called parthenocarpic fruits. since in pomegranate juicy testa is the edible part and parthenocarpy will make the fruit seedless and hence they will be useless.

Question118

Which of the following is a 'true fruit? (1996)

Options:

A. Banana

B. Fig

C. Apple

D. Pear

Answer: A

Solution:

Solution:
(a) : A fruit is a ripened ovary. On the basis of the formation of fruits, they are classified into two types - true fruits and false fruits. True fruits are developed from the ovary only. Banana is a fleshy fruit - berry. It develops from multicarpellary syncarpous superior or inferior ovary. The pericarp of berries is differentiated into epicarp, mesocarp and endocarp (like drupes) but the endocarp is not stony as in drupes. Apple and pear are pome. Pome is a false fruit in which the edible part is thalamus where the true fruit remains embedded. Fig is a composite fruit. These fruits are the products of the whole inflorescence together with its component parts.

Question119

The plant, which bears clinging roots, is (1994)

Options:

A. screw pine

B. Podostemon

C. Trapa

D. orchid.

Answer: D

Solution:

Solution:
(d) : Clinging roots arise from the nodes of stem and penetrate the stem of the host plant. It helps in fixing the plant to the host. It is found in orchids. Orchids bear three types of roots - clinging roots for fixation, absorbing roots for absorbing

mineral salts and water and epiphytic roots for absorbing moisture from air.

Question120

A plant bears fruit, has a column of vascular tissue and a tap root system. This plant is a
(1994)

Options:

A. angiosperm and dicot

B. gymnosperm and dicot

C. angiosperm and monocot

D. gymnosperm and monocot.

Answer: A

Solution:

Solution:
(a) : In angiosperms, seeds are produced inside the ripened ovary called fruit. However in gymnosperms the seeds are not produced inside a fruit. In angiosperms vascular tissue includes both tracheids and vessels and in gymnosperms the vascular tissue contains only tracheids and not vessels. Tap root is the primary root that develops from the radicle. It forms lateral branches which are further branched to form tertiary roots. These are generally found in dicotyledons. In monocotyledons, primary root is short lived, tap root is absent and adventitious roots are found. The given description is about angiospermic dicot.

Question121

Hypanthodium is a specialized type of
(1994)

Options:

A. fruit

B. inflorescence

C. thalamus

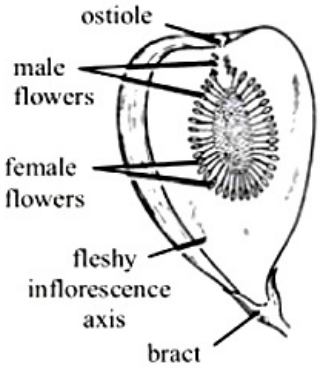
D. ovary.

Answer: B

Solution:

Solution:
(b) : Inflorescence is the cluster of flowers or arrangement of flowers on the floral axis. Hypanthodium is the characteristic inflorescence of Ficus (Family Moraceae) / Here a cup-shaped cavity with an apical opening or ostiole is formed by a fleshy receptacle, which is guarded by inwardly projecting hairs and bear flowers on the inner wall of the

cavity,i. e., female (♀) flowers at the base and male (♂) flowers above.



Hypanthodium (longitudinal section)

Question122

Pulses are obtained from (1993)

Options:

A. Fabaceae

B. Asteraceae

C. Poaceae

D. Solanaceae.

Answer: A

Solution:

Solution:
(a) : Pulses are obtained from Fabaceae. Pulses are very economically as well as nutritionally very important for human beings.

Question123

Epipetalous stamens with free filaments and fused anthers occur in (1992)

Options:

A. Asteraceae

B. Solanaceae

C. Liliaceae

D. Poaceae.

Answer: A

Solution:

(a) : Epipetalous stamens with free filaments and fused anthers occur in Asteraceae. Asteraceae possess five stamens with free filaments. This family shows syngenesious condition in which anthers are united forming a tube around the style.

Question124

Floral formula of tomato/tobacco is

(a) $\oplus ♂♀ K_{4-5}A_{10}G_{(2)}$ (b) $\oplus ♂♀ K_{2+2}C_4A_{2+4}G_1$

(c) $\oplus ♂♀ P_2A_3G_1$ (d) $\oplus ♂♀ K_{(5)}\overset{\frown}{C_{(5)}}A_5\underline{G}_{(2)}$.

(1992,1989)

Options:

A. (a)

B. (b)

C. (c)

D. (d)

Answer: D

Solution:

Solution:
The floral formula of tobacco is

$\oplus ♀ K_{(5)}\overset{\frown}{C_{(5)}}A_5\underline{G}_{(2)}$

It belongs to the family Solanaceae. The flower is actinomorphic, bisexual, 5 sepals gamosepalous, 5 gamopetalous corolla, 5 epipetalous stamens and 2 carpels syncarpous having superior ovary.

Question125

Botanical name of cauliflower is (1991)

Options:

A. Brassica oleracea var. capitata

B. Brassica compesteris

C. Brassica oleracea var. botrytis

D. Brassica oleracea var: gemmifera.

Answer: A

Solution:

Solution:
(a) : Botanical name of cauliflower is Brassica oleracea belongs to variety capitata. Family of cauliflower is Cruciferae.

Question126

 is floral formula of

(1991)

Options:

A. Liliaccae

B. Solanaceae

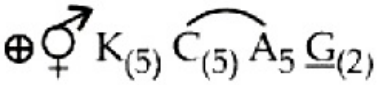
C. Asteraceae

D. Fabaceae.

Answer: B

Solution:

Solution:
(b) : Flowers in pea have diadelphous stamens. The floral formula for Solanaceae is



Question127

Epipetalous and syngenesious stamens occur in (1991)

Options:

A. Solanaceae

B. Brassicaceae

C. Fabaceae

D. Asteraceae.

Answer: D

Solution:

(d) : Syngenesious condition is found in Asteraceae. It is the condition when stamens are united by their anthers (filaments free). Epipetalous condition is also seen here.

Question128

Fruit of Mangifera indica is (1991)

Options:

A. berry

B. drupe

C. capsule

D. siliqua.

Answer: B

Solution:

Solution:
Cypsella is a dry, one chambered, one seeded fruit developing from an inferior, bicarpellary ovary,e.g., sunflower, marigold, cosmos, etc. Caryopsis or grain is a small, dry one seeded fruit developing from superior monocarpellary ovary. Pericarp fused with the seed coat, e.g., rice, wheat, maize, etc. Cremocarp is a bilocular, two seeded fruit developing from an inferior bicarpellary ovary. It is characteristic fruit of umbelliferae, e.g., Coriander, Cuminum, etc. Berry or bacca develops from mono or multicarpellary superior or inferior syncarpous ovary with axile or parietal placentation, e.g., tomato, banana, brinjal, guava, grapes etc.

Question129

A family delimited by type of inflorescence is (1991)

Options:

A. Fabaceae

B. Asteraceae

C. Solanaceae

D. Liliaceae.

Answer: B

Solution:

(b) : A family delimited by type of inflorescence is Asteraceae. Asteraceae possess head or capitulum inflorescence, which is racemose and is surrounded by an involucre of bracts.

Question130

Syngenesious condition is found in (1991)

Options:

A. Asteraceae

B. Labiatae

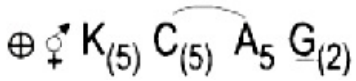
C. Solanaceae

D. Fabaceae.

Answer: A

Solution:

Solution:
The floral formula of tobacco is



It belongs to the family Solanaceae. The flower is actinomorphic, bisexual, 5 sepals gamosepalous, 5 gamopetalous corolla, 5 epipetalous stamens and 2 carpels syncarpous having superior ovary.

Question131

Vegetative reproduction of Agave occurs through (1991)

Options:

A. rhizome

B. stolon

C. bulbils

D. sucker.

Answer: C

Solution:

(c) : Vegetative reproduction in Agave occurs through bulbils. Bulbils are the specialised buds 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.

Question132

Velamen is found in
(1991)

Options:

A. roots of screwpine

B. aerial and terrestrial roots of orchids

C. leaves of Ficus elastica

D. aerial roots of orchids.

Answer: D

Solution:

Solution:
(d) : Velamen is found in aerial roots of orchids. In many epiphytic orchids, the aerial roots are covered by a hygroscopic velamen tissue. They absorb water from the atmosphere.

Question133

In groundnut the food/oil reserve is present in
(1990)

Options:

A. epicarp

B. mesocarp

C. endosperm

D. cotyledons.

Answer: D

Solution:

Solution:
(d) : In groundnut the food/oil reserve is present in cotyledons. It is very important commercial crop of Leguminosae.

Question134

Tegmen develops from
(1990)

Options:

A. funiculus

B. chalaza

C. inner integument

D. outer integument.

Answer: C

Solution:

Solution:
(c) : Outer protective covering of seed is called seed coat which develops from integuments of ovules. The seeds developing from bitegmic ovule have two layers. The outer layer is called testa and inner layer or tegmen develops from inner integuments.

Question135

Oil reserve of groundnut is present in
(1990)

Options:

A. embryo

B. cotyledons

C. endosperm

D. underground tubers.

Answer: B

Solution:

Solution:
In groundnut the food/oil reserve is present in cotyledons. It is very important commercial crop of Leguminosae.

Question136

New banana plants develop from
(1990)

Options:

A. rhizome

B. sucker

C. stolon

D. seed.

Answer: B

Solution:

Solution:
(b) : Suckers are the sub-aerial modification of stem. They grow obliquely upward from the main stem producing roots from the underground nodes. The sucker like structures in banana are also calledsword suckers, which give rise to new leafy trunk.

Question137

Mango juice is obtained from (1989)

Options:

A. epicarp

B. mesocarp

C. endocarp

D. pericarp and thalamus.

Answer: B

Solution:

Solution:
Mango (Mangifera indica) of Family Anacardiaceae is a drupe. The edible part in mango is mesocarp.

Question138

Which one yields fibres? (1988)

Options:

A. Coconut

B. Oak

C. Teak

D. Sisso

Answer: A

Solution:

Solution:
(a) : Coconut (Cocos nucifera) is commercial fibres yielding crop. Fibres originate from the upper epidermal surface of seed.

Question139

Micropyle of seed is involved in the passage of (1988)

Options:

A. male gamete

B. pollen tube

C. water

D. gases.

Answer: C

Solution:

Solution:
(c) : Micropyle of seed is involved in the passage of water. Micropyle plays an very important role in absorbing water during the time of germination.

Question140

Fruit of groundnut is (1988)

Options:

A. legume

B. caryopsis

C. berry

D. nut.

Answer: A

Solution:

(a) : Fruit of groundnut is legume. It is developed from monocarpellary ovary but dehisces by both sutures from apex downward.
