Chapter 01 Sexual Reproduction in Flowering Plants

TOPIC WISE QUESTIONS

FLOWER – A FASCINATING ORGAN OF ANGIOSPERMS

Q.1 Mustard is angiosperm because it possesses -
(1) Seed (2) Pollen grain
(3) Vascular tissue (4) Fruit

Q.2 Essential whorls of a flowers
(1) Calyx and Corolla
(2) Corolla and Gynoecium
(3) Androecium and Gynoecium
(4) All the above

PRE- FERTILISATION : STRUCTURES AND EVENTS

Q.3 Go through the figure showing a dissected flower of *Hibiscus* showing pistil.
Identify A, B, C and D respectively.

(1) Hilum, carpel, ovary and thalamus
(2) Stigma, style, ovary and thalamus
(3) Anther, style, ovary and placenta
(4) Stigma, style, Gynophore and anthopore

Q.4 PEC (Primary Endosperm Cell) is formed
(1) Before triple fusion
(2) After triple fusion
(3) At the time of syngamy
(4) Always persisted

Q.5 Just before fertilization, the diploid structure in the ovule of Angiosperm is
(1) Pollen tube (2) Secondary nucleus
(3) Synergids (4) Antipodals

Q.6 Which type of gametes are present in angiosperms?
(1) Flagellated (2) Motile
(3) Non-motile (4) None of these

Q.7 The type of cells under going meiosis in the flowers are
(1) Microspore mother cell & megaspore mother cell
(2) Ovule & stamen
(3) Tapetal cells
(4) Placental cell

Q.8 The vegetative cell is :-
(1) Small, has large irregularly shaped nucleus
(2) Large, has large irregularly shaped nucleus
(3) Large with spindle shaped nucleus
(4) Small, spindle shaped nucleus

Q.9 Each sporogenous tissue is potential pollen or microspore mother cell; division taking place in sporogenous cell is :-
(1) Mitosis (2) Meiosis
(3) Endomitosis (4) Amitosis

Q.10 In over 60% of angiosperms pollen grains are shed at :-
(1) One celled state (2) Three nuclei stage
(3) Two celled stage (4) Three celled stage

Q.11 The types of flowers which always produce seeds even in the absence of pollinators :-
(1) Chasmogamous flowers
(2) Cleistogamous flowers
(3) Bisexual flowers
(4) Unisexual flowers

Q.12 In a pollen grain, the small cell which is spindle shaped, with dense cytoplasm is :-
(1) Vegetative cell (2) Generative cell
(3) Tube cell (4) None

Q.13 A typical angiosperm anther is _____ and _____ .
(1) Bilobed, tetrasporangiate
(2) Bilobed, monosporangiate
(3) Bilobed, bisporangiate
(4) Tetralobed, monosporangiate

Q.14 The innermost wall layer of anther :-
(1) Is nutritive in function
(2) Helps in dehiscence of anther
(3) Is haploid and protective in function
(4) Forms microspores

Q.15 The process of formation of microspores from a pollen mother cell is called :-
(1) Mega-sporogenesis
(2) Micro-sporogenesis
(3) Mega-gametogenesis
(4) Micro-gametogenesis

Q.16 The pollen grain represents :-
(1) Male gamete (2) Male gametophyte
(3) Microsporophyll (4) Microsporangium

Q.17 The most resistant organic material known which makes up the outermost layer of pollen wall is :-
(1) Pectin (2) Cellulose
(3) Sporopollenin (4) Lignin

Q.18 The type of pollination which brings genetically different types of pollen on the stigma is :-
(1) Autogamy (2) Xenogamy
(3) Geitonogamy (4) Cleistogamy

Q.19 The thin and continuous wall layer of pollen is
(1) Exine (2) Intine
(3) Germ pore (4) Endothecium

Q.20 The two-celled stage of mature pollen grain consists of :-
(1) Vegetative cell, generative cell
(2) Vegetative cell, one male gamete
(3) Two male gametes
(4) Generative cell, one male gamete

Q.21 In less than 40% angiosperms, the pollen grains are shed at :-
(1) Four-celled stage
(2) Three-celled stage
(3) Two-celled stage
(4) Five-celled stage

Q.22 Pollen allergy is caused by pollens of :-
(1) Rose (2) *Clematis*
(3) *Parthenium* (4) Sunflower

Q.23 Feathery stigma and versatile anthers are characteristic of :-
(1) Wind pollinated flowers
(2) Insect pollinated flowers
(3) Water pollinated flowers
(4) Bat pollinated flowers

Q.24 Which part of the reproductive structure produces both enzyme & hormones
(1) Archesporium (2) Middle layer
(3) Tapetum (4) Endothecium

Q.25 The process of formation of microspores from pollen mother cell through …..*A*…is called…*B*…Microspores are arranged in ….*C*….As the anthers matures and dehydrate, microspores develop into the …..*D*…
Fill in the blanks *A* to *D*.
(1) A-Pollen grains, B-Microspore tetrad, C-Microsporogenesis, D-Meiosis
(2) A-Microspore tetrad, B-Microsporogenesis, C-Meiosis, D-Pollen grains
(3) A-Microsporogenesis, B-Microspore

tetrad, C-Pollen grain, D-Meiosis

(4) A-Meiosis, B-Microsporogenesis, C-Microspore tetrad, D-Pollen grains

Q.26 Common floral reward provided by plants to pollinator are :-

(1) Nector and pollen

(2) Pollen and enzymes

(3) Hormones and nectar

(4) All of these

Q.27 Example of polyploid tissue present in an angiosperm plant is

(1) Perisperm (2) Embryo

(3) Tapetum (4) Placenta

Q.28 Which of the following statement is applicable for all flowering plants ?

(1) Monosiphonous pollen tube

(2) Non-motile and morphologically dissimilar gametes

(3) Presence of pollinium

(4) Division of generative cell after pollination

Q.29 Anther is generally composed of

(1) One sporangium (2) Two sporangia

(3) Three sporangia (4) Four sporangia

Q.30 In papaya, male and female flowers are present on different plants. It permits :-

(1) Autogamy

(2) Geitonogamy

(3) Both autogamy and geitonogamy

(4) Xenogamy

Q.31 Pollens have two prominent walls which are …*A*….and…B….Here *A* and *B* refers to

(1) A-Intine, B-Protein coat

(2) A-Exine, B-Intine

(3) A-Sporopollenin, B-Intine

(4) A-Sporopollenin, B-Exine

Q.32 Which of the following is not related with anther?

(1) Tapetum (2) Endothecium

(3) Nucellus (4) Sporogenous tissue

Q.33 How many meiosis are required to produce 100 seeds of wheat?

(1) 125 (2) 200 (3) 400 (4) 250

Q.34 Sporopollenin is found in :-

(1) Exine (2) Intine

(3) Cytoplasm (4) Nucleus

Q.35 Microsporophyll of Angiosperms is known as:-

(1) Androecium (2) Anther

(3) Filament (4) Stamen

Q.36 Main function of endothecium (in anther) is :-

(1) Mechanical (2) Nutritive

(3) Dehiscence (4) None of above

Q.37 The sporopollenin is non-degradable because

(1) It can withstand strong acids

(2) It is resistant at very high temperature

(3) No enzyme degrade it

(4) All of the above

Q.38 Integumented megasporangium is :-

(1) Ovule (2) Pollen sac

(3) Pollen grain (4) Embryo sac

Q.39 The nutritive tissue present in the ovule is called:-

(1) Nucellus (2) Funicle

(3) Embryo (4) Integuments

Q.40 The number of embryo sac in an ovule is generally :-

(1) One (2) Many (3) Four (4) Three

Q.41 The role of triple fusion in angiosperms is to produce :-

(1) Cotyledons (2) PEN

(3) Endocarp (4) Seed

Q.42 The ploidy level of nucellus and female gametophyte respectively is :-

(1) n, n (2) n, 2n

(3) 2n, n (4) 2n, 2n

Q.43 The number of nuclei in a mature embryo sac are

(1) Eight (2) Seven

(3) Six (4) Four

Q.44 The largest cell of the mature embryo sac is :-

(1) Antipodal cells (2) Synergids

(3) Central cell (4) Egg cell

Q.45 The structures which guide the pollen tube into synergid is :-
(1) Antipodals (2) Germ pore
(3) Aril (4) Filiform apparatus

Q.46 Which one is female gametophyte
(1) Embryo (2) Embryo sac
(3) Endosperm (4) Pistil

Q.47 Select **incorrect** statement regarding micro-sporogenesis in an anther :-
(1) Large number of microspore mother cells differentiate in one pollen sac
(2) Each microsporogenesis involves one meiosis and two mitosis
(3) Microspore tetrads may be tetrahedral or isobilateral
(4) It consumes tapetum and middle layers

Q.48 The embryo sac of Angiosperm derives its nutrition from-
(1) Sporogenous (2) Tapetum
(3) Epithecium (4) Nucellus

Q.49 To achieve 3- celled stage in angiosperms, which cell of the pollen grain divides to form two male gametes?
(1) Vegetative cell
(2) Generative cell
(3) Microspore mother cell
(4) None of the above

Q.50 Megasporophyll is called:-
(1) Gynoecium (2) Carpel
(3) Ovary (4) Stigma

Q.51 How many pollen sacs are present in a mature anther
(1) 4 (2) 1 (3) 3 (4) 2

Q.52 Pollen tablets are available in the market for
(1) In vitro fertilization
(2) Breeding programmes
(3) Supplementing food
(4) Ex situ conservation

Q.53 Chalazal pole is present
(1) Opposite to micropyle
(2) At the origin of integuments
(3) Opposite to nucellus
(4) Near the embryo sac

Q.54 An angiospermic plant is having 24 chromosomes in its leaf cells. the number of chromosomes present in synergid, pollen grain, nucellus & endosperm will be respectively :-
(1) 12, 12, 12, 72 (2) 8, 8, 12, 36
(3) 12, 12, 24, 36 (4) 12, 12, 12, 36

Q.55 After fertilization, the seed is developed from
(1) Ovule (2) Ovary
(3) Embryo (4) Endosperm

Q.56 The special features of the endothecium of anther of angiosperms :–
(1) Radially elongated
(2) Thickening of α – cellulose
(3) Hygroscopic in nature
(4) All of the above

Q.57 Which type of growth is found in pollen tube ?
(1) Lateral growth (2) Apical growth
(3) Middle growth (4) No growth

Q.58 Longest pollen tube is found in :
(1) Wheat (2) Maize
(3) Barley (4) Rice

Q.59 Geitonogamy is :-
(1) Genetically autogamous
(2) Ecologically autogamous
(3) Genetically allogamous
(4) Functionally autogarmous

Q.60 The primary endosperm nucleus in Polygonum type of Embryo sac is :-
(1) Haploid (2) Diploid
(3) Triploid (4) Tetraploid

Q.61 Examples of water pollinated flowers are :-
(1) *Zostera*, Lotus, water lily
(2) Lotus, *Vallisneria, Hydrilla*
(3) *Potamogeton, Vallisneria*, Lotus
(4) *Vallisneria, Hydrilla, Zostera*

Q.62 Which of the following is not a characteristic feature of insect pollinated flowers ?
(1) Fragrance
(2) Nectaries
(3) Foul odour
(4) Mucilaginous covering on pollen grains

Q.63 Which of the following nuclei participate in double fertilization ?
(1) The egg
(2) The secondary nucleus
(3) The two male nuclei
(4) All of the above

Q.64 Dioecious condition prevents :-
(1) Autogamy (2) Geitonogamy
(3) Xenogamy (4) Both (1) & (2)

Q.65 Transfer of pollen grains from the anther to the stigma of another flower of same plant :-
(1) Xenogamy (2) Autogamy
(3) Geitonogamy (4) Allogamy

Q.66 Cleistogamous flower produce assured seed-set even in the absence of pollinator, why ?
(1) Because they have fragrance
(2) Because they remain open
(3) Because they are autogamous
(4) Because they are coloured

Q.67 Chasmogamy refers to the condition where
(1) Flowers remains closed
(2) Flowers absent
(3) Flowers open
(4) Flowers are gamopetalous

Q.68 When pollen grains of a flower are transferred to stigma of another flower on a different plant, the process is called
(1) Geitonogamy (2) Xenogamy
(3) Autogamy (4) Homogamy

Q.69 When anther and stigma mature at the same time is called as
(1) Dichogamy (2) Allogamy
(3) Xenogamy (4) Homogamy

Q.70 Self-pollination means
(1) Transfer of pollen from anthers to stigma in the same flowers
(2) Transfer of pollen from one flowers to another on the different plant
(3) Occurrence of male and female sex organ in the same flowers
(4) Germination of pollen

Q.71 The part of pistil which acts as landing platform for pollen grain :-
(1) Stigma (2) Style
(3) Ovule (4) Ovary

Q.72 Maize is best example of :
(1) Wind pollination
(2) Bird pollination
(3) Insect pollination
(4) Water pollination

Q.73 The most common mode of pollination is -
(1) Insect pollination
(2) Wind pollination
(3) Water pollination
(4) None of the above

Q.74 Insect pollinated flowers usually possess
(1) Brightly coloured pollens in large quantity
(2) Dry pollens with smooth surface
(3) Sticky pollen and rough surface stigma
(4) Light coloured scented pollen covered with nectar

Q.75 **Statement I:** Both Geitonogamy and Xenogamy require pollinating agents for pollination.
Statement II: Both geitonogamy and Xenogamy decrease inbreeding depression.
(1) Statement-I is incorrect but II is correct.
(2) Both statements I and II are correct.
(3) Statement-I is correct but II is incorrect.
(4) Both statements I and II are incorrect.

Q.76 Which of the following promote pollen germination and tube growth
(1) Sucrose (2) Boron
(3) Magnesium (4) Potassium

Q.77 Which one of the following is false fruit?
(1) Apple (2) Strawberry
(3) Cashew (4) All

Q.78 How many and what type of male gametes are produced by the male gametophyte of angiosperms
(1) One,. multi-ciliated
(2) Two, biciliated
(3) Two, multi-ciliated
(4) Two, non-motile

Q.79 Arising from placenta is megasporangium which is commonly known as :
(1) Ovule (2) Ovary
(3) Ovarian cavity (4) Stamen

Q.80 In angiosperms, functional megaspore generally develops into :-
(1) Micropylar end
(2) Chalazal end
(3) Both (1) and (2)
(4) None

Q.81 How many cells or nuclei are present in male gametophyte of angiosperms
(1) One (2) Two
(3) Three (4) Many

Q.82 Emasculation :-
(1) Prevents self-pollination in female parent
(2) Prevents cross pollination in female parent
(3) Prevents self-pollination in male parent
(4) Prevents cross pollination in male parent

Q.83 Filiform apparatus are found in
(1) Antipodal cell
(2) Egg cell
(3) Secondary nucleus
(4) Synergids

DOUBLE FERTILISATION

Q.84 The diploid and triploid product of double fertilization respectively are :-
(1) Zygote and primary endosperm nucleus
(2) Endosperm and cotyledons
(3) Embryo and perisperm
(4) Zygote and scutellum

Q.85 Double endosperm is found in :-
(1) Wheat (2) Rice
(3) Pea (4) Coconut

Q.86 A typical angiosperm embryo sac at maturity have :-
(1) 7 celled - 8 nucleate
(2) 9 celled - 7 nucleate
(3) 3 celled - 3 nucleate
(4) 2 celled - 2 nucleate

POST-FERTILISATION: STRUCTURES AND EVENTS

Q.87 The central cell after triple fusion becomes the
(1) PEC (2) PEN
(3) Endosperm (4) Embryo

Q.88 Perisperm is
(1) Persistant nucellus in seed
(2) Ovule wall
(3) Ovule coat
(4) Fossil of haustoria

Q.89 Free nuclear division in an angiosperm takes place during
(1) Gamete formation
(2) Endosperm formation
(3) Embryo formation
(4) Flower formation

Q.90 Both male and female flowers are present on the same plant such as
(1) Papaya (2) Castor
(3) Date palm (4) All the above

Q.91 Micropyle in seed helps in the entry of
(1) Male gamete (2) Pollen tube
(3) Water & air (4) All

Q.92 Maize is monoecious plant. It
(1) Prevents autogamy but not geitonogamy
(2) Allows both autogamy and geitonogamy
(3) Allows autogamy but not geitonogamy
(4) Prevents both autogamy and geitonogamy

Q.93 True fruit is directly derived from
(1) Stem (2) Root (3) Ovary (4) Leaf

Q.94 Ex-albuminous seeds are of :-
(1) Wheat, pea, groundnut
(2) Castor, pea, groundnut
(3) Pea, groundnut, beans
(4) Wheat, castor, rice

Q.95 The single cotyledon in monocots is :-

(1) Scutellum which is lateral in position
(2) Aleurone layer which is terminal in position
(3) Scutellum which is centrally placed
(4) Epiblast which is haploid and lateral in position

Q.96 The sheath enclosing plumule and radicle respectively in monocot seed are :-
(1) Coleoptile and coleorhiza
(2) Coleorhiza and coleoptile
(3) Scutellum and epiblast
(4) Aleurone layer and paricarp

Q.97 Perispermic seeds are :-
(1) Castor, sunflower (2) Black pepper, beet
(3) Maize, beet (4) Barley, maize

Q.98 In Angiosperm, if number of chromosomes in endosperm is 30, what will be the no. of chromosomes in nucellus :-
(1) 15 (2) 30 (3) 20 (4) 40

Q.99 Single shield shape cotyledon of grass is known as:-
(1) Tigellum (2) Scutellum
(3) Coleoptile (4) None

Q.100 Epicotyl has a shoot apex and few leaf primordia enclosed in a hollow foliar structure known as :-
(1) Coleoptile (2) Coleorhiza
(3) Scutellum (4) Tigellum

Q.101 The cylindrical portion below the cotyledons is …*A*… that terminates to ….*B*….and its tip is called …*C*…*A*, *B* and *C* here refers to
(1) A-Radicle, B-Hypocotyl, C-Root cap
(2) A-Root cap, B-Radicle, C-Hypocotyl
(3) A-Hypocotyl, B- Root cap, C-Radicle
(4) A-Hypocotyl, B- Radicle, C- Root cap

APOMIXIS AND POLYEMBRYONY

Q.102 Production of seed without fertilization is called:
(1) Parthenocarpy (2) Parthenogenesis
(3) Apomixis (4) Apogamy

Q.103 Which of the following is a parthenocarpic fruit?
(1) Banana (2) Apple
(3) Strawberry (4) Pomegranate

Q.104 Type of cell division takes place in apomixis is
(1) Reductional (2) Meiosis
(3) Both (1) and (2) (4) Mitosis

Q.105 Suitable environmental conditions for seed germination are :-
(1) Adequate moisture, light, anaerobic conditions
(2) Adequate moisture, low temperature, light
(3) Adequate moisture, suitable temperature and oxygen
(4) Light, water, absence of oxygen

Q.106 Most reduced gametophyte is of
(1) Bryophytes (2) Pteridophyte
(3) Gymnosperm (4) Angiosperm

Q.107 In many plants, the sexual reproduction replaced by asexual reproduction it is called
(1) Semigamy (2) Apospory
(3) Apomixis (4) Amphimixis

Q.108 Repeated self pollination over the generation produces :
(1) New species
(2) Better progenies
(3) Inbreeding depression
(4) Elimination of weak traits

Q.109 Although in most of species fruits are result of fertilisation, there are a few species in which fruit develop without fertilisation - process is known as:
(1) Parthenocarpy (2) Parthenogenesis
(3) Amphimixis (4) Apomixi

ANSWER KEY

TOPIC WISE QUESTIONS

Que.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Ans.	4	3	2	2	2	3	1	2	1	3	2	2	1	1	2
Que.	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans.	2	3	2	2	1	2	3	1	3	4	1	3	2	4	4
Que.	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
Ans.	2	3	1	1	4	3	4	1	1	1	2	3	1	3	4
Que.	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
Ans.	2	2	4	2	2	4	3	1	3	1	4	2	2	1	3
Que.	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**
Ans.	4	4	4	4	3	3	3	2	4	1	1	1	1	3	3
Que.	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
Ans.	2	4	4	1	1	3	1	4	1	4	1	1	1	2	2
Que.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Ans.	3	1	3	3	1	1	2	3	2	1	4	3	1	4	3
Que.	106	107	108	109											
Ans.	4	3	3	1											