(1) Plants identical to mother plants can be had from

(a) Its seeds (b) Stem cuttings

(c) Its fruits (d) Hybridisation

(2) Which of the following is not a method of vegetative propagation

(a) Sowing (b) Cutting

(c) Layering (d) Grafting

(3) A clone is a group of individuals obtained through

(a) Self pollination

(b) Vegetative propagation

(c) Hybridisation

(d) Cross pollination

(4) Micropropagation is

(a) Microtomy of propagating organ

(b) Plant production from microspores

(c) Propagation of microbes

(d) Technique of obtaining new plants by cultivating cells or tissue in culture medium

(5) Micropropagation is carried out by

(a) Hybridisation

(b) Genetic recombination

(c) Parasexual mechanism

(d) Tissue culture

(6) *Begonia* reproduces vegetatively by

(a) Vegetative buds

(b) Adventitious buds

(c) Floral bud

(d) Bulbils

(7) Vegetative reproduction through offset is common in

(a) *Antigonon* (b) *Eichhornia*

(c) *Elodea* (d) *Amorphophallus*

(8) In *Amorphophallus,* vegetative reproduction is carried out through

(a) Bulbs (b) Offset

(c) Corm (d) Rhizome

(9) Scion is a term in relation to

(a) Grafting (b) Palaeobotany

(c) Embryology (d) Emasculation

(10) On the margins of leaves of a plant called *Bryophyllum,* tiny plants grow complete with roots. These tiny plants fall off and continue to grow. This is a form of

(a) Sexual reproduction

(b) Reproduction by fission

(c) Vegetative reproduction

(d) Hermaphroditism

(11) Vegetative growth (propagation) of potato is by

(a) Rhizome (b) Tuber

(c) Sucker (d) Bulb

(12) Grafting is not possible in monocots because they

(a) Have scattered vascular bundles

(b) Have parallel venation in leaves

(c) Lack cambium

(d) Are herbaceous

(13) The 'eyes' of the potato tuber are

(a) flower buds (b) shoot buds

(c) axillary buds (d) root buds

(14) Grafting is successful in dicots but not in monocots because the dicots have

(a) vascular bundle arranged in a ring

(b) cambium for secondary growth

(c) vessels with element arranged end to end

(d) cork cambium

(15) In which one pair, both the plants can be vegetatively propagated by leaf pieces ?

(a) Bryophyllum and Kalanchoe

(b) Chrysanthemum and Agave

(c) Agave and Kalanchoe

(d) Asparagus and Bryophyllum

8.2 Sexual Reproduction:

(16) In monoecious plants

(a) Male and female parts are borne by the same flower.

(b) Male and female parts are borne by different plants.

(c) Male and female parts are borne by the same plant but not by the same flower.

(d) Male, female and neuter flowers are borne by the same plant.

(17) A flower is a modified

(a) Fruit (b) Root

(c) Shoot (d) All (a) (b) (c)

(18) Which is the most logical sequence with reference to life cycle of angiosperms ?

(a) Germination, endosperm formation, seed dispersal, double fertilization

(b) Cleavage, fertilization, grafting, fruit formation

(c) Pollination, fertilization, seed formation, germination

(d) Maturation, mitosis, differentiation, fertilization

(19) Anther is generally composed of

(a) Two sporangia

(b) Three sporangia

(c) Four sporangia

(d) Only one sporangium

(20) When a microspore mother cell with 40 chromosomes undergoes meiosis, each of the four resulting cells has

(a) 80 chromosomes (b) 40 chromosomes

(c) 20 chromosomes (d) 10 chromosomes

(21) How many pollen grains can be formed after meiotic division in 10 microspore mother cells ?

(a) 80 (b) 40 (c) 20 (d) 10

(22) The number of meiotic divisions necessary to produce 1000 pollen grains

(a) 200 (b) 250 (c) 500 (d) 1000

(23) The tapetal nuclei in anthers of many angiosperm flowers are

(a) Mostly aneuploid

(b) Mostly polyploidy

(c) Mostly haploid

(d) Not having complete haploid genome

(24) Which of the following statements is correct for the pollen tube ?

(a) It shows chemotactic movement

(b) It shows only tip growth

(c) It is composed of three non-cellular zones

(d) It shows radial cytoplasmic streaming

(25) Which part of the reproductive structure produces both enzymes and hormones ?

(a) Archesporium (b) Middle layer

(c) Tapetum (d) Endothecium

(26) Even after killing the generative cell with a laser beam, the pollen grain of a flowering plant germinates and produces normal pollen tube because

(a) Laser beam stimulates pollen germination and pollen tube growth

(b) The vegetative cell has not been damaged

(c) The contents of killed generative cell permit germination and pollen tube growth

(d) The laser beam does not damage the region from which pollen tube emerges

(27) Germ pore is the region where the exine is

(a) Thin (b) Uniform

(c) Thick and uniform (d) Absent

(28) Pollen grain in angiosperms is released at which stage

(a) 1-celled (b) 2-celled

(c) 3-celled (d) 2 or 3-celled

(29) Male gametophyte of Angiosperms is reduced to

(a) one cell (b) two cells

(c) three cells (d) four cells

(30) Male gamete in angiosperm is produced by

(a) generative cell (b) microspore cell

(c) vegetative cell (d) tube cell

(31) Larger nucleus in a pollen grain is

(a) tube nucleus

(b) sperm nucleus

(c) generative nucleus

(d) none of these

(32) Tapetum is

(a) protective (b) reproductive

(c) nutritive (d) respiratory

(33) The nutritive layer of microsporangia of *Cypsella*.

(a) endothecium

(b) exothecium

(c) sporogenous tissue

(d) tapetum

(34) Which one of the following is most resistant to enzyme action ?

(a) Cork (b) Wood fibre

(c) Pollen exine (d) Leaf cuticle

(35) In angiosperms, an ovule represents

(a) Megasporophyll

(b) Megasporangium

(c) A megaspore

(d) A megaspore mother cell

(36) Part of the gynoecium which receives the pollen is called

(a) Style (b) Stigma (c) Ovule (d) Ovary

(37) The ovule is attached to the placenta by

(a) Hilum (b) Funicle (c) Petiole (d) Pedicel

(38) The tissue which attaches the ovules with the ovary is

(a) Placenta (b) Chalaza

(c) Funicle (d) Hilum

(39) An orthotropous ovule is one in which micropyle and chalaza are

(a) Oblique to funiculus

(b) At right angles to funiculus

(c) Parallel to funiculus

(d) In straight line of funiculus

(40) Stalk of ovule is called

(a) Funicle (b) Caruncle

(c) Nucellus (d) Pedicle

(41) The point where funicle joins with ovule is known as

(a) Chalaza (b) Hilum

(c) Integument (d) Micropyle

(42) Generally the number of integuments in the ovule of Angiosperms and Gymnosperms is

(a) One and two (b) One and one

(c) Two and one (d) Two and two

(43) When the hilum, chalaza and micropyle of the ovule lie in the same longitudinal axis, it is known as

(a) Anatropous ovule

(b) Amphitropous ovule

(c) Campylotropous ovule

(d) Orthotropous ovule

(44) Meiotic division in an ovule takes place in

(a) Megaspore

(b) Archesporium

(c) Nucellus

(d) Megaspore mother cell

(45) The sequence of development of embryo sac is

(a) Archesporium → Megaspore → Megaspo-rophyte → Embryo sac

(b) Archesporium → Megaspore → Megaspore mother cell → Embryo sac

(c) Archesporium → Megaspore mother cell → Megaspore → Embryo sac

(d) None of the above

(46) Which one is female gametophyte ?

(a) Embryo (b) Embryo sac

(c) Endosperm (d) Synergid

(47) Embryo sac is found in

(a) Endosperm (b) Embryo

(c) Ovule (d) Seed

(48) In an embryo sac of a typical Angiosperm there are

(a) Egg, synergids and antipodals

(b) Egg, synergids, polar nuclei and antipodals

(c) Egg, synergids, central cell and polar nuclei

(d) Egg, synergids and secondary cell

(49) A typical angiospermic embryo sac is usually

(a) One-celled (b) Two-celled

(c) Four-celled (d) Seven-celled

(50) The female gametophyte of a typical dicot at the time of fertilization is

(a) 8-celled (b) 7-celled

(c) 6-celled (d) 4-celled

(51) Embryo sac is called monosporic when it develops from -

(a) All the four megaspores

(b) Only from two functional megaspores

(c) Three megaspores

(d) One of the megaspores out of the four megaspores which are derived from division of megaspore mother cell

(52) A polygonum type of embryo sac is

(a) 7-celled and 8-nucleate

(b) 8-celled and 7-nucleate

(c) 7-celled and 7-nucleate

(d) 8-celled and 8-nucleate

(53) Monosporic 8-nucleate female gametophyte is found in

(a) *Fritillaria* (b) *Polygonum*

(c) *Adoxa* (d) *Allium*

(54) Monosporic 8-nucleate embryo sac is

(a) *Oenothera* type (b) *Allium* type

(c) *Polygonum* type (d) *Pepromia* type

(55) In Angiosperms, the functional megaspore of a linear tetrad is the

(a) First nearest to the micropyle

(b) Second from micropyle

(c) Third from micropyle

(d) Fourth from micropyle

(56) The microscopic structure in flower that contains polar nuclei is

(a) Only gametophyte

(b) Pollen tube

(c) Embryo sac

(d) None of the above

(57) During the formation of embryo sac, the functional megaspore undergoes

(a) two mitotic divisions

(b) two meiotic divisions

(c) three meiotic divisions

(d) three mitotic divisions

(58) Raphe is

(a) part of flower

(b) funicle attached to ovule

(c) ridge formed by funiculus

(d) parts of nucellus

(59) Embryo sac is also known as

(a) micro-gametophyte

(b) mega-gametophyte

(c) micro-sporangium

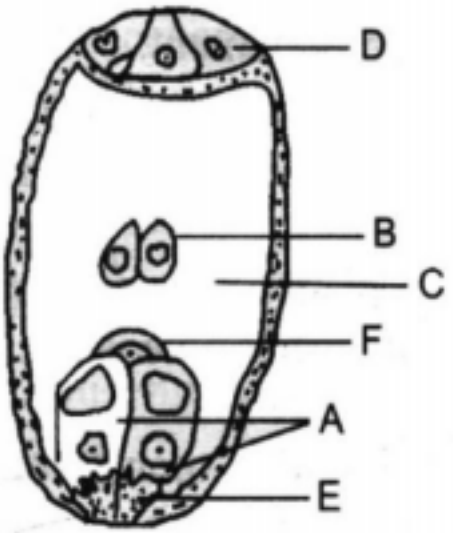
(d) mega-sporangium

(60) Filiform apparatus is a characteristic feature of

(a) egg (b) synergid

(c) zygote (d) suspensor

(61)



In the given diagram, parts labelled as A, B, C, D, E and F are respectively identified as

(a) synergids, polar nuclei, central cell, antipodals, filiform apparatus and egg

(b) polar nuclei, egg, antipodals, central cell filiform apparatus and synergids

(c) egg, synergids, central cell, filiform apparatus, antipodals and polar nuclei

(d) central cell, polar nuclei, filiform apparatus, antipodals, synergids and egg

(62) Which one of the following pairs of plant structures has haploid number of chromosomes ?

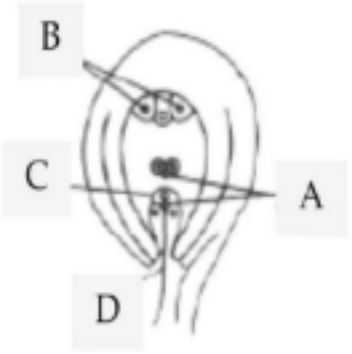
(a) Megaspore mother cell and antipodal cells

(b) Egg cell and antipodal cells

(c) Nucellus and antipodal cells

(d) Egg nucleus and secondary nucleus

(63) Which of the following indicates correct names of A,B, C and D regions of the given diagram?



(a) A – Male gamete B – Antipodals
C – Egg cell D – Pollen tube

(b) A – Synergids B – Secondary nucleus
C – Egg apparatus D – Integuments

(c) A – Antipodals B – Male gametes
C – Zygote D – Micropyle

(d) A – Secondary nucleus B – Synergids
C – Egg cell D – Integuments

(64) The arrangement of the nuclei in a normal embryo sac in the dicot plants, is

(a) 2 + 4 + 2 (b) 3 + 2 + 3
(c) 2 + 3 + 3 (d) 3 + 3 + 2

(65) Which of the following statement is/are true?

I. Endothecium lies below epidermis
II. Fusion of egg with male gamete is called apogamy
III. Synergids are haploid
IV. The point at which funicle touches the ovule is raphe.

(a) II and IV only (b) I and II only
(c) I and IV only (d) I and III only

(66) Pollination is best defined as

(a) Germination of pollen grains

(b) Visiting of flowers by insects

(c) Transfer of pollen from anther to stigma

(d) Growth of pollen tube in ovule

(67) Pollination is characteristic of

(a) Bryophytes (b) Fungi

(c) Angiosperms (d) Pteridophytes

(68) Pollination characteristically occurs in

(a) Angiosperms and Fungi

(b) Angiosperms and Gymnosperms

(c) Pteridophytes and Angiosperms

(d) Bryophytes and Angiosperms

(69) Self pollination means

(a) Transfer of pollen from anthers to stigma in the same flower

(b) Transfer of pollen from one flower to another on the same plant

(c) Occurrence of male and female sex organs in the same flower

(d) Germination of pollen within the anther

(70) Which prevents self-pollination ?

(a) Unisexuality (b) Dichogamy

(c) Self sterility (d) All the above

(71) If a pollen of a flower falls on the stigma of another flower belonging to the same plant it is

(a) Ecologically cross-pollination

(b) Genetically and ecologically cross-pollination

(c) Genetically self-pollination and ecologically cross-pollination

(d) None of these

(72) When pollen of a flower is transferred to the stigma of another flower of the same plant, the pollination is referred to as

(a) xenogamy (b) geitonogamy

(c) autogamy (d) allogamy

(73) Entomophily is pollination by

(a) Animals (b) Insects

(c) Air (d) Water

(74) Lever mechanism or turnpipe mechanism for pollination is a characteristic feature of-

(a) *Antirrhinum* (b) *Ocimum*

(c) *Salvia* (d) *Ficus*

(75) Unisexuality of flowers prevents

(a) autogamy, but not geitonogamy

(b) geitonogamy and xenogamy

(c) geitonogamy, but not xenogamy

(d) autogamy and geitonogamy

(76) Pollination by birds is

(a) entomophily (b) chiropterophily

(c) anemophily (d) ornithophily

(77) Wind pollination is common in

(a) lilies (b) grasses

(c) orchids (d) legumes

(78) Transfer of pollen grains from the anther to the stigma of another flower of the different plant is called

(a) xenogamy (b) geitonogamy

(c) karyogamy (d) autogamy

(79) Wind pollinated flowers are

(a) small, brightly coloured, producing large number of pollen grains

(b) small, producing large number of dry pollen grains

(c) large producing abundant nectar and pollen

(d) small, producing nectar and dry pollen

(80) In some plants, anthers and stigmas grow and mature at same time. This phenomenon is called

(a) homogamy (b) syngamy

(c) allogamy (d) fusion

(81) Pollination by bats is called

(a) anemophily (b) hydrophily

(c) ornithophily (d) chiropterophily

(82) Bright colouration of flowers is an adaptation for

(a) anemophily (b) hydrophily

(c) malacophily (d) entomophily

(83) Which type of pollen grains are found in insect pollinated flowers?

(a) Hygroscopic

(b) Light and sticky

(c) Light and smooth

(d) Heavy and coloured

(84) Which one of the following is a reference to hybridization ?

(a) Ripening of androecium earlier to gynoecium

(b) Pollen grains of one flower, reaching the stigma of another flower present on the same plant

(c) Pollen grains of one flower, reaching the stigma of another flower present on a different plant of the different variety

(d) The inability of pollen tube to germinate on the stigma of the same flower

(85) Fusion of one male gamete with the egg cell and fusion of another male gamete with secondary nucleus is called

(a) Fertilization (b) Double fertilization

(c) Triple fertilization (d) Karyogamy

(86) In angiosperms, triple fusion is required for the formation of

(a) seed coat (b) fruit wall

(c) embryo (d) endosperm

(87) Double fertilization is characteristic of

(a) Angiosperms (b) Algae

(c) Gymnospenns (d) Bryophytes

(88) Double fertilization was discovered (or first observed) by

(a) Karl Schnarf (b) P. Maheshwari

(c) S.G. Nawaschin (d) B.G.L. Swamy

(89) In double fertilisation, the male gamete and secondary nucleus give rise to

(a) Embryo (b) Endosperm

(c) Gametes (d) Egg

(90) If the endosperm mother cell of an angiosperm plant has 24 chromosomes, the same in the MMC will be

(a) 12 (b) 48 (c) 16 (d) 24

(91) When a diploid female plant is crossed with a tetraploid male, the ploidy of endosperm cells in the resulting seed is?

(a) Diploid (b) Triploid

(c) Tetraploid (d) Pentaploid

(92) Triple fusion in angiosperm is the fusion of second sperm with

(a) antipodal cell and one synergid cell

(b) two antipodal cells

(c) two synergid cells

(d) two polar nuclei

(93) The endosperm in angiosperms develops from

(a) zygote

(b) primary endosperm nucleus

(c) chalazal polar nucleus

(d) micropylar polar nucleus

(94) The fertilization in which male gametes are carried through pollen tube, is known as

(a) syngamy (b) porogamy

(c) siphonogamy (d) chalazogamy

(95) Vegetative fertilization is also called

(a) triple fusion

(b) true fertilization

(c) syngamy

(d) generative fertilization

(96) Micropyle is useful for the entry of

(a) pollen grain (b) pollen tube

(c) water (c) male gamete

(97) The fusion of male and female pronuclei of the gametes is called

(a) apomixis (b) conjugation

(c) amphimixis (d) panmixis

(98) The movement of pollen tube is called

(a) chemotropism (b) thermotaxis

(c) thermonastic (d) hydrotropism

(99) If root of flowering plant has 24 chromosomes then its gamete has how many chromosomes?

(a) 24 (b) 12 (c) 4 (d) 8

(100) Mesogamy is

(a) fusion of male and female gametes

(b) fusion fo physiologically similar and morphologically different gametes

(c) entry of pollen tube through integuments

(d) none of the above