



Chapter 9

Kingdom Plantae

TOPIC-WISE MULTIPLE CHOICE QUESTIONS

Classification of Plants & Bryophyta

KIPS MCQs

- (1) There are about _____ known species of plants.
 - (a) 150,000
 - (b) 250,000
 - (c) 360,000
 - (d) 390,000
- (2) Following group is not related to Bryophyta:
 - (a) Hepaticopsida
 - (b) Bryopsida
 - (c) Anthocerosida
 - (d) Psilopsida
- (3) The first plants to colonize land were:
 - (a) Algae
 - (b) Amphibious plants
 - (c) Vascular plants
 - (d) Angiosperms
- (4) Bryophytes are thought to be evolved from:
 - (a) Brown algae
 - (b) Red algae
 - (c) Euglenoids
 - (d) Green algae
- (5) Conduction of water and minerals in bryophytes occurs through:
 - (a) Xylem
 - (b) Phloem
 - (c) Diffusion
 - (d) Both 'a' & 'b'
- (6) Gamete production in plants is by:
 - (a) Amitosis
 - (b) Mitosis
 - (c) Meiosis
 - (d) None of these
- (7) Multicellular embryo is not formed in:
 - (a) Protists
 - (b) Plants
 - (c) Animals
 - (d) Both 'a' & 'b'

PAST PAPERS MCQs

- (8) _____ plants are said to be amphibian's of plants. (MTN 2017)
 - (a) Angiosperm
 - (b) Gymnosperm
 - (c) Bryophyte
 - (d) Pteridophyte
- (9) The sporophyte of bryophytes is: (SGK 2017)
 - (a) Haploid
 - (b) Diploid
 - (c) Triploid
 - (d) Tetraploid
- (10) Vascular system is absent in: (SWL 2022)
 - (a) Bryophytes
 - (b) Pteridophytes
 - (c) Gymnosperms
 - (d) Angiosperms

Land Adaptations

KIPS MCQs

- (11) _____ plants are poorly adapted to life on land.
 - (a) Green algae
 - (b) Bryophytes
 - (c) Tracheophytes
 - (d) Gymnosperms

- (12) **Bryophytes show alternation of generations that is:**
 (a) Isomorphic (b) Heteromorphic
 (c) Both of these (d) None of these
- (13) **Gametophyte is main generation of:**
 (a) Bryophytes (b) Tracheophytes
 (c) Algae (d) Spermatophyte
- (14) **In an archegonium of a bryophyte, how many eggs are produced?**
 (a) One (b) Two
 (c) Three (d) Many
- (15) **Which adaptation is shown by bryophytes for absorption and conservation of water?**
 (a) Compact multicellular plant body (b) Presence of cuticle
 (c) Presence of rhizoids (d) All of these

Classification & Life Cycle of Bryophyta

KIPS MCQs

- (16) **Simplest of all bryophytes are:**
 (a) Liverworts (b) Mosses
 (c) Hornworts (d) None of these
- (17) **Total number of species of liverworts are:**
 (a) 300 (b) 600
 (c) 900 (d) 1000
- (18) **In liverworts, sex organs are developed on:**
 (a) Lower surface of thallus (b) Upper surface of thallus
 (c) Lateral sides of thallus (d) Sporophyte
- (19) **Which bryophytes can also grow on dry places alongwith damp places?**
 (a) Liverworts (b) Mosses
 (c) Hornworts (d) All of these
- (20) **Antheridia and archegonia are produced on different plants in:**
 (a) *Porella* (b) *Anthoceros*
 (c) *Funaria* (d) *Polytrichum*
- (21) **An intermediate stage, protonema is produced when sporophyte is converted in gametophyte in:**
 (a) Liverworts (b) Mosses
 (c) Hornworts (d) None of these
- (22) **Highly developed bryophytes as compared to others are:**
 (a) Liverworts (b) Mosses
 (c) Hornworts (d) None of these
- (23) **The gametophyte is highly lobed and irregular in:**
 (a) Liverworts (b) Mosses
 (c) Hornworts (d) *Marchantia*
- (24) **Out of the following bryophytes, which has photosynthetic sporophyte:**
 (a) *Funaria* (b) *Anthocerps*
 (c) *Marchantia* (d) None of these
- (25) **First cell of sporophyte & gametophyte generations is:**
 (a) Gamete & spore (b) Spores & gametes
 (c) Zygote & spore mother cell (d) Zygote and spore
- (26) **In which of the following bryophytes sporophyte has stomata & meristem:**
 (a) *Funaria* (b) *Anthoceros*
 (c) *Polytrichum* (d) *Marchantia*

(27) In which of the following bryophyte sporophyte can live even if gametophyte is dead:

- (a) *Marchantia* (b) *Porella*
(c) *Polytrichum* (d) *Anthoceros*

PAST PAPERS MCQs

(28) In mosses, archegonia and antheridia mixed with sterile hairs are called: (SWL 2017)

- (a) Mycelium (b) Paraphyses
(c) Hyphae (d) Trichomes

(29) Liverworts belong to the subdivision: (DGK 2017)

- (a) Hepaticopsida (b) Bryopsida
(c) Anthoceropsida (d) Lichens

(30) Mosses belong to the subdivision: (LHR 2017)

- (a) Hepaticopsida (b) Bryopsida
(c) Anthoceropsida (d) Ascomycota

(31) Lycopside are commonly called: (LHR 2019)

- (a) Whisk ferns (b) Horse tails
(c) Club mosses (d) Hornworts

(32) *Polytrichum* is a: (FSD 2019)

- (a) Club moss (b) Moss
(c) Live crust (d) Hornwort

(33) *Funaria* is example of: (DGK 2019)

- (a) Hepaticopsida (b) Bryopsida
(c) Psilophyta (d) Anthoceropsida

(34) Which is included in non-vascular plants: (LHR 2021)

- (a) Hornworts (b) Whisk ferns
(c) Club mosses (d) Horse tails

(35) Bryophytes are generally believed to have evolved from: (DGK 2021)

- (a) Brown algae (b) Red algae
(c) Golden algae (d) Green algae

(36) Anthoceropsida are commonly known as: (BWL 2021)

- (a) Liverworts (b) Mosses
(c) Hornworts (d) Club Mosses

Tracheophyta / Psilopsida

KIPS MCQs

(37) Which of the following is character of all tracheophytes?

- (a) Root (b) Flower
(c) Leaves (d) Vascular tissue

(38) Which of the following structure is found in psilopsids?

- (a) Roots (b) Stem
(c) Leaves (d) All of these

(39) Following is incorrect about internal structure of psilophytes:

- (a) Narrow vascular bundle (b) Broad cortex
(c) Central pith (d) All of these

(40) Two living genera of psilophytes are:

- (a) *Rhynia* & *Psilotum* (b) *Cooksonia* & *Rhynia*
(c) *Horneophyton* & *Tmesipeteris* (d) *Tmesipeteris* & *Psilotum*

(41) Function of roots in psilopsids is performed by:

- (a) Rhizoids (b) Rhizome
(c) Both 'a' & 'b' (d) none of these

- (42) At the tips of the branches in psilopsida are produced:
 (a) Sporangia (b) Archegonia
 (c) Antheridia (d) Zygote
- (43) The vascular plants are:
 (a) Bryophytes (b) Embryophytes
 (c) Tracheophytes (d) None of these
- PAST PAPER MCQs**
- (44) All seed producing plants are called (GRW 2017)
 (a) Eryophytes (b) Pteridophytes
 (c) Tracheophytes (d) Spermatophytes
- (45) Which of following is not extinct member? (RWP 2017)
 (a) *Horneophyton* (b) *Psilotum*
 (c) *Psilophyton* (d) *Cooksonia*
- (46) In psilopsida sporangia are produced at: (LHR 2018)
 (a) Tips of branches (b) In the axils of branches
 (c) Margins of leaves (d) Axis of leaves
- (47) Living genus of Psilopsida is: BWL 2022)
 (a) *Cooksonia* (b) *Hornioophyton*
 (c) *Psilophyton* (d) *Psilotum*

Evolution of Leaf

KIPS MCQs

- (48) _____ were first plants that formed true leaves & roots:
 (a) Spsilopods (b) Lycopods
 (c) Sphenopods (d) Ppteropsids
- (49) Unequal development of various branches is called:
 (a) Overtopping (b) Planation
 (c) Webbing (d) Fusion
- (50) The process of evolution of leaf was very slow and gradual and completed in more than:
 (a) 10-15 million years (b) 15-20 million years
 (c) 20-25 million years (d) 15-30 million years
- (51) Which of the following is right sequence of events during evolution of leaf?
 (a) Planation, over topping, webbing (b) Webbing, over topping, planation
 (c) Planation, webbing, over topping (d) Over topping, planation, webbing

PAST PAPER MCQs

- (52) Which of the following were the first plants that formed true leaves and roots? (MLT 2019)
 (a) Psilopoids (b) Lycopods
 (c) Megaphylls (d) Ferns
- (53) The arrangement of unequal dichotomies in one plane is called: (MLT 2022)
 (a) Overtopping (b) Planation
 (c) Fusion (d) Webbing
- (54) First plants that formed true the leave and roots, are: (MLT 2021)
 (a) Lycopods (b) Spemopsida
 (c) Pteropsida (d) Angiosperms

Lycopsidea**KIPS MCQs**

- (55) Type of leaves found in lycopods are:
 (a) Microphylls (b) Megaphylls
 (c) Compound leaves (d) Simple with reticulate venation
- (56) Strobili in lycopods are made by aggregate of:
 (a) Sporophylls (b) Sporangia
 (c) Sporangiothecae (d) None of these
- (57) Which of the following is seedless & heterosporous?
 (a) Lycopodium (b) Selaginella
 (c) Pines (d) Rose

PAST PAPER MCQs

- (58) The arrangement of leaves of Lycopods: (SRG 2022)
 (a) Spiral (b) Alternatic
 (c) Solitary (d) Upper and lower

Sphenopsida**KIPS MCQs**

- (59) 'Arthropytes' is another name used for members of:
 (a) Psilopsida (b) Lycopsidea
 (c) Sphenopsida (d) Pteropsida
- (60) The leaves bearing sporangia are called:
 (a) Microsporangia (b) Megasporangia
 (c) Foliar sporangia (d) Sporophylls

PAST PAPERS MCQs

- (61) The plants of sphenopsida are also called as: (FSD 2017)
 (a) Angiosperms (b) Gymnosperms
 (c) Mossees (d) Arthropytes

Pteropsida**KIPS MCQs**

- (62) Horizontal, underground stem of adiantum is called:
 (a) Rhizoid (b) Ramenta
 (c) Rhizome (d) Aerial stem
- (63) Which of the following structure is associated with ferns?
 (a) Strobili (b) Sori
 (c) Soredia (d) Cone
- (64) Annulus occupies how much area of capsule in adiantum:
 (a) 1/4 (b) 2/4
 (c) 3/4 (d) 1/5
- (65) The prothallus in ferns is actually:
 (a) Sporophyte & diploid (b) Sporophyte & monoploid
 (c) Gametophyte & diploid (d) Gametophyte & monoploid
- (66) The young leaves in *Adiantum* is called:
 (a) Fiddle head (b) Frond
 (c) Ramenta (d) Scale leaves
- (67) Inside the sporangia spore are formed by:
 (a) Mitosis (b) Meiosis
 (c) Amitosis (d) Fusion

(68) The size of prothallus of *Adiantum* at its longest diameter is about:

- (a) 8mm (b) 8cm
(c) 12mm (d) 2mm

PAST PAPERS MCQs:

(69) The class of seedless plants containing foliar sporangia is (DGK-2019)

- (a) Filicinae (b) Gymnospermae
(c) Angiospermae (d) Algae

(70) The rhizome in *Adiantum* is protected by (SWL 2019)

- (a) Ramenta (b) Fronds
(c) Stipe (d) Stomium

(71) Fern Prothallus is: (SRG 2021)

- (a) Sporophyte (b) Saprophyte
(c) Gametophyte (d) Seed

Evolution of Seed Habit

KIPS MCQs

(72) First complete seed appeared about _____ years ago.

- (a) 350 M (b) 360 M
(c) 365 M (d) 390 M

(73) The single healthy megaspore retained within the megasporangium germinates to form an egg containing female gametophyte called:

- (a) Archegonium (b) Antheridium
(c) Ovule (d) Embryo sac

(74) Which of the following character is present only in seed plants?

- (a) Archegonia (b) Antheridia
(c) Protonema (d) Ovule

(75) Which is incorrect about evolution of seed?

- (a) Formation of pollen tube (b) Formation of ovule
(c) Formation of embryo sac (d) Development of homospory

PAST PAPERS MCQs:

(76) After fertilization ovule is changed into: (SRG 2019)

- (a) Ovary (b) Seed
(c) Fruit (d) Flower

(77) An ovule is an Integumented indehiscent: (FSD 2022, LHR 2018)

- (a) Micro sporangium (b) Seed
(c) Sporogonium (d) Mega sporangium

(78) All seed producing plants are called: (GRV 2017, LHR 2021)

- (a) Bryophytes (b) Antrophytes
(c) Pteridophytes (d) Spermatophytes

Gymnosperms

KIPS MCQs

(79) In life cycle of *Pinus* the duration between pollination & fertilization is:

- (a) One year (b) 1.25 year
(c) Less than a year (d) Less than a month

(80) Gymnosperms constitute about _____ of world forest.

- (a) 1/2 (b) 1/3
(c) 1/4 (d) 3/4

- (81) The male cones in pinus are:
 (a) Large in size (b) Produced at lower most branch
 (c) Produced in clusters (d) Both 'b' & 'c'
- (82) Integumented megasporangium containing embryo is:
 (a) Seed (b) Carpel
 (c) Ovule (d) Ovary
- (83) The last cell of sporophyte generation is:
 (a) Gamete (b) Oospore
 (c) Spore mother cell (d) Spore
- (84) Microspore of seed plants containing microgametophyte is called:
 (a) Ovule (b) Archegonia
 (c) Pollen grain (d) Microsporangium
- (85) Structures present in pollen grain of pinus are:
 (a) Feathers (b) Flagella
 (c) Cilia (d) Wings
- (86) The period in which the first complete seed plant appeared is:
 (a) Devonian (b) Permian
 (c) Silurian (d) Carboniferous

PAST PAPERS MCQs

- (87) Among gymnosperms Cedrus plant is commonly called _____. (GRW-2021)
 (a) Deodar (b) Hemlock
 (c) Sago-palm (d) Pine
- (88) Scientific name of Sago-palm is: (SWL-2021)
 (a) Cycas (b) Pinus
 (c) Taxus (d) Picea
- (89) Which is not included in gymnosperms, is called _____. (GRW-2022)
 (a) Pinus (b) Cycas
 (c) Cartages (d) Taxus
- (90) The genus, which is not included in gymnosperms, is called _____. (RWP-2022)
 (a) Pins (b) Cycas
 (c) Cartages (d) Taxus

Angiosperm**KIPS MCQs**

- (91) The female gametophyte of an angiosperm is:
 (a) Ovule (b) Archegonia
 (c) Embryo sac (d) None of these
- (92) Prothallus is:
 (a) Sporophyte (b) Saprophyte
 (c) Gametophyte (d) Seed
- (93) A flower is a modified:
 (a) Root (b) Leaf
 (c) Shoot (d) None of these
- (94) Ovary wall in angiosperms is converted into:
 (a) Testa (b) Tegmen
 (c) Pericarp (d) Seed coat
- (95) Following are features of monocots except:
 (a) Single cotyledon (b) Petals 3 or their multiple
 (c) Scattered vascular bundle (d) Net veins in leaf

- (96) In which of the following archegonia are not present:
 (a) Ferns (b) Gymnosperms
 (c) Angiosperms (d) None of these
- PAST PAPERS MCQs**
- (97) Double fertilization is a special process found in: (SGD 2017)
 (a) Bryophytes (b) Psilopsida
 (c) Gymnosperms (d) Angiosperms
- (98) In Flowering Plants, Ovary wall develops into: (BWP 2017)
 (a) Seed (b) Fruit
 (c) Flower (d) Seed Coat
- (99) In angiosperm, megaspore develop into female gametophyte which consists of: (FSD 2019)
 (a) 3 cells (b) 5 cells
 (c) 7 cells (d) 9 cells
- (100) Fern Prothallus is: (RWP 2019)
 (a) Sporophyte (b) Saprophyte
 (c) Gametophyte (d) Seed
- (101) Double fertilization is the characteristic of: (MLT 2021, GRW 2019, GRW 2018)
 (a) Angiosperms (b) Gymnosperms
 (c) Bryophytes (d) Pteridophytes
- (102) The female gametophyte of flowering plant consists of _____ cells. (LHR 2022)
 (a) 2 (b) 4
 (c) 7 (d) 8

Angiospermic Families

KIPS MCQs

- (103) Technical term used for fused carpals is:
 (a) Spocarpus (b) Polycarpous
 (c) Syncarpous (d) Adalphous
- (104) *Capsicum annum* & *Capsicum frutescens* are rich in:
 (a) Vitamin A & B (b) Vitamin A & C
 (c) Vitamin A & D (d) Vitamin B & C
- (105) Members of ____ family rank third in commercial importance in the temperate zone among families of flowering plants:
 (a) Rosaceae (b) Solanaceae
 (c) Fabaceae (d) Poaceae
- (106) Pulses are rich in:
 (a) Carbohydrates (b) Proteins
 (c) Fats (d) Vitamins
- (107) *Mimosa pudica* is member of:
 (a) Rose family (b) Cassia family
 (c) Acacia family (d) Grass family
- (108) Type of inflorescence found in grasses is:
 (a) Racemose (b) Corymb
 (c) Spikelets (d) Cyme
- (109) Dry, indehiscence fruit in which fruit wall is fused with seed coat is:
 (a) Pod (b) Legume
 (c) Dry fruit (d) Caryopsis

- (110) **Botanical name of rice is:**
 (a) *Avena sativa* (b) *Oryza sativa*
 (c) *Hordeum vulgare* (d) *Secale cereale*
- (111) **Largest plant family is:**
 (a) Solanaceae (b) Fabaceae
 (c) Poaceae (d) Caesalpinaceae
- (112) **Atropine and daturine are medicines obtained from members of family:**
 (a) Rosaceae (b) Soaceae
 (c) Rabaceae (d) Solanaceae
- (113) **Epipetalous stamens is the characteristics of:**
 (a) Rosaceae (b) Soaceae
 (c) Fabaceae (d) Solanaceae
- (114) **The common name of *Bauhinia variegata* is:**
 (a) Amaltas (b) Kachnar
 (c) Gum tree (d) Pea nut
- (115) **Scientific name of Apple is:**
 (a) *Malus* (b) *Pytus pyrifolia*
 (c) *Fragaria* (d) *Cassia fistula*
- (116) **Family of Apple is:**
 (a) Rosaceae (b) Poaceae
 (c) Fabaceae (d) Solanaceae
- (117) **Potato family is the general name of:**
 (a) Rosaceae (b) Poaceae
 (c) Fabaceae (d) Solanaceae
- (118) ***Clitoria ternatea* is used against:**
 (a) Dog bite (b) Insect bite
 (c) Horse bite (d) Snake bite
- (119) **Solanaceae has plant:**
 (a) *Solanum tuberosum* (b) *Pyrus pastia*
 (c) *lathyrus odoratus* (d) *Tamarandus indica*

PAST PAPERS MCQs:

- (120) **Tomato belongs to family:** (LHR 2017)
 (a) Rosaceae (b) Poaceae
 (c) Solanaceae (d) Fabaceae
- (121) ***Arachis hypogea* belongs to the family of:** (MTN 2017)
 (a) Rosaceae (b) Solanaceae
 (c) Fabaceae (d) Poaceae
- (122) **Sweet pea belongs to which family:** (BWL-2019)
 (a) Fabaceae (b) Rosaceae
 (c) Solanaceae (d) Poaceae
- (123) **The placentation of potato family is:** (DGK-2022)
 (a) Basal (b) Free central
 (c) Axile (d) Marginal

ANSWER KEY

(Topic-Wise Multiple Choice Questions)

1	c	21	b	41	c	61	d	81	c	101	a	121	c
2	d	22	c	42	a	62	c	82	a	102	c	122	a
3	b	23	c	43	c	63	b	83	c	103	c	113	
4	d	24	b	44	d	64	c	84	c	104	b		
5	c	25	d	45	b	65	d	85	d	105	a		
6	c	26	b	46	a	66	a	86	a	106	b		
7	a	27	d	47		67	b	87	a	107	c		
8	c	28	b	48	b	68	a	88	a	108	c		
9	b	29	a	49	a	69	a	89	b	109	d		
10	a	30	b	50	b	70	a	90	b	110	b		
11	b	31	c	51	d	71	c	91	c	111	c		
12	b	32	b	52		72	c	92	c	112	d		
13	a	33	b	53	b	73	d	93	c	113	d		
14	a	34	a	54	a	74	d	94	c	114	b		
15	d	35	d	55	a	75	d	95	d	115	a		
16	d	36	c	56	a	76	b	96	c	116			
17	c	37	d	57	b	77	d	97	d	117	d		
18	b	38	b	58	a	78	d	98	b	118	d		
19	b	39	c	59	c	79	b	99	c	119	a		
20	d	40	d	60	d	80	b	100	c	120	c		

Classification of Plants & Bryophyta

KIPS QUESTIONS

Q:1 What do you understand from phylogenetic system of classification?

Ans: A system of classification which describes the natural relationships among living organisms and their mode of origin is called phylogenetic system of classification.

Q:2 Write down the names of four sub-divisions of tracheophyta.

Ans:

- Psilopsida (Whisk ferns)
- Lycopoda (Club mosses)
- Sphenopsida (Horse tails)
- Eteropsida (Ferns seed plants)

PAST PAPERS QUESTIONS

Q:3

Q:4 Define kingdom plantae. (GRW 2018)

Q:5 Name the classes of division bryophyte. (BWL 2019, RWL 2021)

Q:6 Name four subdivisions of trichophyte (RWL 2021)

Q:7 What is phylogenetic system of classification? (GRW 2019, LHR 2022)

Land Adaptations, Classification & Life Cycle of Bryophyta

KIPS QUESTIONS

Q:8 How does fertilization occur in bryophytes?

Ans: Fertilization takes place through water. Antherozoids (n) move towards archegonia (n) chemotactically. A single antherozoid fuses with an egg (n). As a result a diploid zygote (2n) is formed.

Q:9 What are characteristics of sporophyte of bryophyte?

Ans:

- (1) It is multicellular.
- (2) It is always diploid.
- (3) It is dependent on gametophyte for nutrition.
- (4) It contains foot, seta and capsule.

Q:10 What is the importance of alternation of generation?

Ans: It is very important phenomenon, which provides continuous genetic variability and selection for the best genetic make up for survival and adaptation in the changing environments.

Q:11 Give two characters for adaptation of bryophytes to land.

Ans:

- (1) Presence of cuticle reduces the loss of water by evaporation.
- (2) Special structures like rhizoids are formed for the absorption of water and anchorage.

Q:12 What are paraphyses?

Ans: These are sterile hair present in mosses. They are mixed with antheridia and archegonia on the tip of gametophyte and protect them.

Q:13 Why bryophytes are called as amphibious plants?

Ans: The bryophytes are also called the amphibians of the plants because they cannot live away from water and need water for reproduction.

Q:14 What do you mean by protonema? In which group is it found?

Ans: **Protonema:**

The spore of a moss develops into an alga like structure called the protonema.

Group:

It is commonly developed in mosses (Bryopsida).

Q:15 What is role of meristematic tissue in hornworts?

Ans: At the junction of foot and spore producing region, there is a band of meristematic tissue. This tissue continuously adds cells towards the spore-producing region during the formation, maturation and dispersal of spores from the proper end. Due to the fast growth rate of this meristematic tissue, the sporophyte keeps on increasing in length for an indefinite period of time.

Q:16 Give two characters of Bryophyta.

Ans:

- (1) First land plants
- (2) Amphibians of plants
- (3) Flowerless plants
- (4) Non-Vascularization

Q:17 List four Adaptations of bryophytes to land habitat.

Ans:

- (1) Formation of compact multicellular plant body which help conserve water.
- (2) Evolution of heterogamy.
- (3) Protection of gametes by multicellular sex org
- (4) Alternation of generation

PAST PAPERS QUESTIONS

- Q:18** What is alternation of generation? **(FSD 2017)**
- Q:19** Give two characters of bryophyte division. **(SGD 2017)**
- Q:20** Highlight evolutionary significance of anthoceropsida. **(GRW 2017)**
- Q:21** How mosses differ from liverworts in development. **(SGD 2017)**
- Q:22** Give graphic representation of alternation of generations? **(DGK 2017)**
- Q:23** Differentiate between bryophytes and tracheophytes. **(LHR 2017)**
- Q:24** What are paraphyses? Give their function? **(DGK 2017)**
- Q:25** Differentiate between bryophytes and tracheophytes. **(LHR 2017)**
- Q:26** Highlight evolutionary significance of anthoceropsida. **(GRW 2017)**
- Q:27** What is protonema? **(BWP 2017, LHR 2019)**
- Q:28** Why Bryophytes are called Amphibians of plant world? **(BWL 2021)**
- Q:29** Define bryophytes. **(LHR 2021)**
- Q:30** What are antheridiophores and archegoniophores? **(MLT 2019)**
- Q:31** Differentiate between Antheridiophores and Archegoniophores. **(BWL 2019)**
- Q:32** Differentiate between homosporous and heterosporous. **(SWL 2021)**
- Q:33** Define alternation of generation. **(MLT 2021)**
- Q:34** Why bryophytes are called amphibians of plants? **(BWP 2017, FSD 2019, GRW 2021)**
- Q:35** Define alternation of generation. **(FSD 2019)**
- Q:36** Give characteristics of bryophytes (briefly). **(LHR 2022)**
- Q:37** Write three characteristics of Bryophytes. **(DGK 2022)**
- Q:38** Differentiate between antheridiophore and archegoniophore. **(DGK 2017, FSD-2022,)**
- Q:39** What are paraphyses and in which plant these are present? **(BWL 2022)**
- Q:40** Differentiate between antheridium and archegonium. **(SRG2022)**

Tracheophyta / Psilopsida**KIPS QUESTIONS**

Q:41 What type of gametophyte is present in psilopsida?

Ans:

The gametophyte is thalloid.

- It is colorless and underground.
- Its cells contain a fungus which provide food to it and get protection in return.

Q:42 Name the living and extinct representatives of psilopsida.

Ans: Living representatives of psilopsida:

- Psilotum
- Tmesipteris

PAST PAPERS QUESTIONS

Q:43 Name the two living and extinct representative of psilopsida.

(RWP 2017)

Evolution of Leaf, Lycopside, Sphenopsida**KIPS QUESTIONS**

Q:44 Differentiate between homosporous and heterosporous.

Ans:

HOMOSPORY	HETEROSPORY
The condition in which plants produce all morphologically and structurally alike spores, is called homosporous.	Condition in which plant produce morphologically, structurally and functionally two different types of spores, the smaller ones called microspores and the larger ones known as megaspores, is called heterosporous.
It is found in primitive vascular land plants like <i>Lycopodium</i> .	It is found commonly in seed producing plants.

Q:45 Differentiate between microphylls and megaphylls.

Ans:

MICROPHYLLS	MEGAPHYLLS
A leaf having a single undivided vein (vascular supply) is called microphyll.	Large leaves having dichotomously divided veins and veinlets with an expanded leaf blade or lamina are known as megaphylls.
For example leaves found in <i>Lycopodium</i> .	Megaphylls are characteristic for Ferns and Seed plants.

Q:46 Why lycopside are called club mosses/spike mosses?

Ans: Lycopside are not mosses but are called club mosses/spike mosses because of their club/spike-shaped strobili and small leaves resembling mosses.

Q:47 Define heterogamy & heterosporous.

Ans: **Heterogamy:**

Production of two types of gametes is called heterogamy.

Heterosporous:

Production of two different types of spores, smaller microspores and larger megaspores, is referred to as heterosporous and such plants are termed heterosporous. Gymnosperms and angiosperms are heterosporous.

Q:48 Why sphenopsids are called arthropytes? Give an example.

Ans: Arthropytes:

The plants belonging to Sphenopsida are called arthropytes because the whole plant body is composed of large number of joints.

Example: *Equisetum*

PAST PAPER QUESTIONS

- Q:49** What are Arthropytes? Give an example. (FSD 2017)
- Q:50** What is overtopping? (RWP 2017)
- Q:51** What are arthropytes? (DGK 2017)
- Q:52** Differentiate between mesophyll and megaphyll leaves. (SWL 2017)
- Q:53** Differentiate between microgametophyte and mega-gametophyte. (LHR 2018)
- Q:54** What is homosporous? Give one example. (GRW 2018)
- Q:55** Which plant group is called arthropytes and why? (LHR 2019)
- Q:56** What is Heterosporous? (LHR 2021)
- Q:57** Differentiate between microphyllous and megaphylly. (GRW 2021)
- Q:58** Write names of two extinct and two living members of psilopsida. (SWL 2019)
- Q:59** Define Homosporous and Heterosporous. (MLT 2019)
- Q:60** Give two important features of lycopsida (BWL 2019)
- Q:61** Difference between Microphyll and megaphylly leaf. (DGK 2021)
- Q:62** What are arthropytes? Why are they called so? (SRG 2019)
- Q:63** Differentiate between microphyll and megaphyll. (FSD 2021, SRG 2019)
- Q:64** What are arthropytes? Why are they called so? (FSD 2021)
- Q:65** Differentiate between homosporous and heterosporous. (RWL 2021, SWL 2019, BWL 2019)
- Q:66** How microphyll and megaphyll leaves are differentiated from each other? (MLT 2022)
- Q:67** Which plant group is called Arthropytes and why? (SWL 2022)
- Q:68** Write name of two extinct and two living members of Psilopsida. (FSD 2022)
- Q:69** What is overtopping in evolution of megaphylly leaf? (RWL 2022, GRW 2022)

Pteropsida

KIPS QUESTIONS

Q:70 What are fronds?

Ans: The leaves of class Filicinae are called Fronds. When the frond is immature and young, it is coiled, this pattern of development is called circinate vernation.

Q:71 What are sori?

Ans: These are groups of sporangia borne on underside of bent margins of leaflets in *Adiantum* and other ferns.

Q:72 What is false indusium?

Ans: The bent margin of the leaflet which covers and protects the sori is called false indusium.

Q:73 What is prothallus?

Ans: Prothallus is gametophyte as found in *Adiantum*. It is autotrophic and monoecious

Q:74 Give features of *Adiantum* prothallus.

Ans:

- Prothallus is small heart shaped structure.
- It is notched at anterior end in which lies growing point.
- From posterior under surface are given out rhizoids which fix the prothallus and absorb water.
- It is made of thin walled of many layers of cells but at the margin it is of single layer.
- The prothallus is monoecious i.e. sex organs develop on the same prothallus.
- Archegonia occur near the notch and antheridia are scattered among Rhizoids.

Q:75 Define circinate venation.

Ans: When the fronds are immature and young, they are coiled, this pattern of development is called circinate venation.

Extinct representatives of psilopsida:

- Rhynia
- Horneophyton
- Psilophyton
- Cooksonia

Q:76 Quote four examples of ferns.

Ans:

- Dryopteris
- Pteridium
- Adiantum
- Pteris

PAST PAPERS QUESTIONS:

Q:77 What are fronds, in which group they are found? **(GRW 2017)**

Q:78 What are the fronds? **(LHR 2018)**

Q:79 Define circinate venation. Give an example. **(LHR 2018)**

Q:80 Differentiate between circinate venation and reticulate venation. **(DGK 2019)**

Q:81 What is prothallus? Give its characteristics. **(GRW 2022)**

Q:82 Define circinate venation. **(MTN 2017, LHR 2017, MTN 2017, BWL 2022,)**

Q:83 What is prothallus? Give its characteristics. **(RWL 2022)**

Q:84 What are sori? **(SRG 2022, GRW 2019)**

Evolution of Seed Habit

KIPS QUESTIONS

Q:85 What is the importance of seed?

Ans: The seed provides maximum protection to a developing embryo under the unfavourable terrestrial environment. The evolution of seed habit was great success and jump, which allowed the plants to live on the land permanently.

Q:86 What is ovule?

Ans: Ovule:

The ovule is an integumented indehiscent megasporangium.

Evolution:

Some branch like structures of sporophyte surrounding the mega sporangium fused to form a protective envelope, the integument. The mega sporangium becomes tightly locked by the integuments. This change led to the evolution of the ovule.

Gymnosperms

KIPS QUESTIONS

Q:87 How ovules of gymnosperms differ from those of angiosperms?

Ans: The ovules in gymnosperms are usually borne on the exposed surfaces of fertile leaves. These ovules are not enclosed but are naked on the surface of fertile leaves. In angiosperms fertile leaves bearing ovules are folded and joined at the margins to form ovaries in which seeds are enclosed.

Q:88 Define seed. In which period it was developed?

Ans: A seed may be defined as a fertilized ovule or a seed is an integumented megasporangium having an embryo.

Period of Development:

First complete seeds appeared about 365 million years ago during the late Devonian times.

Q:89 What are Gymnosperms and Angiosperms?

Ans: Gymnosperms:

Naked seeded non – flowering plants are called gymnosperms.

Example:

- **Cycas** (Sago – palm)
- **Pinus** (Pines)
- **Picea** (Hemlock)
- **Cedrus** (Deodar)
- **Ginkgo**

Angiosperms:

The flowering plants with their seeds enclosed in fruits are called angiosperms.

Example:

- Apple
- Mango
- Rose
- Orange

PAST PAPERS QUESTIONS:

- Q:90** How does gymnosperm differ from Angiosperm? Give two points only. (RWP 2017)
- Q:91** What are gymnosperms, give an example? (MTN 2017)
- Q:92** Write down the main difference between Microphylls and Megaphylls. (MTN 2017)
- Q:93** Define ovule and embryo sac (LHR 2017)
- Q:94** What are integuments? (LHR 2019)
- Q:95** How male cone of pinus differs from female cone? (MLT 2019)
- Q:96** Define ovule and integument (DGK 2021)
- Q:97** Differentiate between Ovule and integuments. (BWL 2021)
- Q:98** Define ovule. (MLT 2019, DGK 2022)

Angiosperm**KIPS QUESTIONS**

- Q:99** Account for the fact that megaspores are large and microspores are small.
- Ans:** Megaspore stores food and provides place for development and nourishment of embryo that is retained and developed within it.
- Q:100** What important advances have angiosperms made towards the seed plant life?
- Ans:** Some important adaptations are:
- (1) Flower production (2) Seed enclosed in fruits (3) Double fertilization
- Q:101** What is embryo sac?
- Ans:** The single healthy megaspore retained with the megasporangium germinated to form an egg containing female gametophyte called an embryo sac.
- Q:102** What is male gametophyte of angiosperms?
- Ans:** Pollen grain germinates to form a pollen tube. The microspore divides by mitotic divisions to form two male gametes and the tube nucleus. At this stage of development, the pollen grain is called male gametophyte, having two male gametes.
- Q:103** What is double fertilization and describe its advantage?
- Ans: Double Fertilization:**
- In angiosperms, the fusion of one male gamete with the egg and the other male gamete with the secondary (fusion) nucleus is called double fertilization.
- Advantage:**
- It ensures maximum food storage in form of endosperm that is further supplied to embryo and helps in better development and growth of embryo, thus ensuring success of angiospermic plants on earth.
- Q:104** What is endosperm?
- Ans:** Endosperm is a triploid nucleus formed by the fusion of one sperm with secondary nucleus in angiosperms.

Q:105 Differentiate between dicots and monocots.

Ans: The most common differences among dicots and monocots are:

Dicots	Monocots
Two cotyledons present in seed.	Single cotyledon present in seed.
Sepals and petals are 4 or 5 or their multiple	Sepals and petals are 3 or their multiple.
Net like veins are present in leaves	Parallel veins are present in leaves.
Vascular bundles are scattered in stem.	Vascular bundle is present in form of ring in stem.

Q:106 What are essential and non-essential parts of flower?

Ans: Essential parts:

Stamens and carpels are the essential or reproductive parts of the flower.

Non-essential parts:

The sepals and petals are non-essential or non-reproductive parts.

PAST PAPERS QUESTIONS:

Q:107 Define double fertilization. (LHR 2017)

Q:108 Define ovule and embryo sac. (LHR 2017)

Q:109 Define double fertilization in why plants it occur. (LHR-2021)

Q:110 Name floral leaves of a flower along with their functions. (GRW-2021)

Q:111 Define double fertilization in Angiosperm. (SWL 2017, DGK-2019)

Q:112 Define Double Fertilization. How is it important of storage of food? (SWL-2021)

Q:113 Differentiate between gymnosperms and angiosperms. (MLT-2021)

Q:114 Define double fertilization. (RWP 2017, DGK-2021, LHR-2021, GRW-2021, MLT-2021)

Q:115 Write down any two difference between monocot and dicot. (DGK-2021)

Q:116 What is double fertilization? Give its importance. (RWL-2021)

Q:117 What is double fertilization? (MLT-2022)

Q:118 Differentiate between monocots and dicots. (LHR-2019, SWL-2022, MLT-2021,)

Angiospermic Families**KIPS MCQs****Q:119 What are commercial applications of family Poaceae?****Ans:**

- The stems of bamboo (*Bambusa*), are used as building material for thatching huts, making boats, carts, pipes.
- The split stems are woven into mats, baskets, fans, hats, coarse umbrella, etc.
- Some grass species are used in paper industry.
- Ethyl alcohol and other kind of beverages such as whisky are prepared from cereals like rye, barley, corn, etc.
- Fibers obtained from the leaves of *Saccharum munja* are used to make ropes.

Q:120 Give some uses of rose?**Ans:**

- In Asian countries the petals of common rose usually called gulabs are used in making gulkand.
- Rose Petals are also used in extraction of an essential oil (rose oil) used as perfume.
- When distilled with water the petals give Rose water or Ark Gulab, which is used for curing eye disease, and for many other purposes.

Q:121 What is economic importance of potato and tomato?**Ans: Potato:**

Potato is the common item used in many types of food. In some countries like Ireland, it is the main food supplement for people.

Tomato:

It is common vegetable used in houses.

Q:122 Economic importance of pea family as food.**Ans:**

- It is important as source of high protein food.
- Pulses are commonly obtained from this family.
- Peanuts are edible and are used to get peanut oil.

Q:123 What is importance of grass family as food?**Ans:**

- Cereals and millets are obtained from this family.
- Many food providing plants are oats, corn, wheat, rice, barley, rye, sugarcane etc.
- Sugar is obtained from juice of sugar cane.
- Ethyl alcohol and many other kind of beverages are also prepared from cereals.

Q:124 Give some uses of bambusa.**Ans:**

- Leaves of bamboos are given to horses as a cure of cough and cold etc.
- These are used as building material for the thatching huts, making boats, carts, pipes etc.
- Its split stems are woven into mats, baskets, fans, hats, coarse umbrella.

Q:125 Write botanical names of these plants.

Ans: The botanical name for rice is *Oryza sativa*; and for tomato it is *Lycopersicon esculentum*.

Q:126 Give two examples of family Poaceae

Ans: Two common plants providing food to man and included in family Poaceae are: *Avena sativa* (oats) and *Triticum vulgare* (wheat)

Q:127 What are familiar plants of Pea family?

Ans: *Lathyrus odoratus* (Sweet pea), *Arachis hypogea* (Peanut), *Cicer arietinum* (Chick Pea) and *Dulbergia sissoo* (Shisham).

Q:128 What is the economic importance of fabaceae as food, forage or fodder crop?

Ans. Food:

Most of the important **pulses** are belonged to this family. These pulses are used as food. Pulses are rich in proteins. The common species of pulses are Gram Pea and Kidney bean.

Forage or fodder crop:

Medicago sativa (Alfalfa) is one of the best forage crops. **Vicia Melilotu** and **Trifolium** are also cultivated as main fodder crops.

PAST PAPERS QUESTIONS

Q:129 Define double fertilization.

(LHR-2017)

Q:130 Write botanical name of two plants belong to family Solanaceae.

(LHR-2018)