



DEPARTMENT OF BOTANY

NAMBOL L. SANOI COLLEGE, NAMBOL

QUESTION BANK

PREVIOUS 5 YEARS (2016-2020)

BOTANY 2nd SEMESTER (ELECTIVE)

PAPER-II / BOT 202: GYMNOSPERM, ANGIOSPERM, APPLIED BOTANY

AND EMBRYOLOGY

UNIT-1: GYMNOSPERM AND PALAEOBOTANY

OBJECTIVE TYPE

(1 MARK QUESTIONS)

- (a) The type of fossil plant in which both external and internal structures of plant is preserved in original form is called (2016, 2018)
- i) Compressions
 - ii) petrifications
 - iii) impressions
 - iv) casts
- b) The type of fossils which remains held within recent deposits is known as (2019)
- i) index fossils
 - ii) pseudofossils
 - iii) subfossils
 - iv) derived fossils

VERY SHORT ANSWER TYPE

(1 MARK QUESTIONS)

- a) Mention one fern character of *cycas*. (2016, 2019)
- b) Name a dominant fossil plant species of Gondwana flora during Carboniferous period. (2016)

- c) Name one gymnosperm where trachea are present. (2017)
- d) Draw a labelled diagram of a single microspore of *Pinus*. (2017)
- e) What is sulphur shower phenomenon. (2018)
- f) Mention the characteristic plants of quaternary period of Cenozoic era. (2018)

SHORT ANSWER TYPE

(3 MARKS QUESTIONS)

- a) Describe in brief, the infiltration theory of fossil formation. (2016)
- b) Write a short note on the economic importance of *pinus*. (2016)
- c) Mention three xerophytic adaptive characters of *Cycas* leaves. (2017)
- d) Construct a single geological time table indicating important geological and biological events. (2017)
- e) Draw and label the longitudinal section of an ovule of *cycas*. (2018)
- f) Describe the infiltration theory of fossil formation. (2018)
- g) State three main importance of fossil. (2019)
- h) "Gymnosperm are less advanced than angiosperm." Give three reasons in support of the statement. (2019)

(6 MARKS QUESTIONS)

- a) Trace the stages of development of male gametophyte of *Gnetum* with labelled diagram. (2016)
- b) Describe in detail the process of pollination and fertilization in *Cycas*, *Pinus* and *Gnetum*. (2017)
- c) Why is *Gnetum* regarded as highly advanced among gymnosperm? Justify your answer by giving five points. (2018)
- d) Give an illustrated account of the development of female gametophyte of *pinus*. (2019)

UNIT-2: ANGIOSPERM

OBJECTIVE TYPE

(1 MARK QUESTIONS)

a) The present-day rules of Botanical Nomenclature popularly known as ICBN (International Code for Botanical Nomenclature) were the outcome of several International Botanical Congress (IBC). In which of the following years the first IBC was held? (2016)

- i) 1753
- ii) 1813
- iii) 1867
- iv) 1905

b) The standard size of a herbarium sheet is (2017)

- i) 28.75 cm x 41.25 cm
- ii) 25.15 cm x 40.25 cm
- iii) 18.75 cm x 41.25 cm
- iv) 28.75 cm x 35.25 cm

c) The central national herbarium, Shibpur, India was established in (2018)

- i) 1793
- ii) 1853
- iii) 1856
- iv) None of the above

d) *Families of flowering plants* was written by (2019)

- i) Linnaeus
- ii) Hutchinson
- iii) Bentham and Hooker
- iv) Engler and Prantl

VERY SHORT ANSWER TYPE

(1 MARK QUESTIONS)

a) Draw and label the structure of a typical spikelet found in Poaceae. (2016)

b) Mention the steps involved in the preparation of herbarium specimen. (2016)

c) What are taxonomy keys? (2017)

- d) Differentiate between artificial and natural classifications with one main point only. (2017)
- e) What are the intraspecific units of classification of angiosperms? (2018)
- f) Who introduced the binomial system of nomenclature? (2018)
- g) How does perisperm differ from kernel? (2019)
- h) Write one method of protection of herbarium sheet against molds and insects. (2019)
- i) Name the most common type of inflorescence and fruit found in the family Euphorbiaceae. (2019)

SHORT ANSWER TYPE

(3 MARKS QUESTIONS)

- a) Distinguish between *Ranunculaceae* and *Rosaceae* on the basis of floral organization. (2016)
- b) Assign the family in which the following floral characters are observed and define condition: (2016)
 - i) Vexillary aestivation
 - ii) Stylopodium
 - iii) Cythium
- c) According to the rules of ICBN, the names of the families should have an ending—'aceae'. However, there are eight families which do not follow the rules. Mention these families along with their respective new alternative names obeying the rule. Why the use of these names is allowed by the rules? (2017)
- d) Draw the following floral characters and mention only one family each in which it is observed: (2017)
 - i) Syngenesious stamen
 - ii) Apocarpous
 - iii) Axile placentation
- e) In a botanical field study tour, an aromatic herb with square stem is collected possessing verticillaster inflorescences, flower zygomorphic, corolla bilabiate, stamen didynamous, epipetalous, style gynobasic, carpels 2, syncarpous and ovary superior. (2018)
- f) State the merits and demerits of Bentham and Hooker's system of classification with only three points each. (2018)

- g) Define numerical taxonomy. Mention any two advantages of it. (2019)
- h) Draw the following floral characters and mention any one family each in which it is observed: (2019)
- i) Gynobasic style
 - ii) Tetradynamous androecium
 - iii) Syngenesious stamen

(6 MARKS QUESTIONS)

- a) Give an outline classification of dicotyledon as proposed by Bentham and Hooker. (2016, 2019)
- b) Discuss the phyletic principles on which Hutchinson's system of classification is based

Or

Bring out the differences between Brassicaceae and Solanaceae by citing one plant from each family as an example. (2017)

- c) The family Asteraceae is regarded as highly advanced family among dicotyledons. Why? Give any six points in support of your answer. (2018)
- d) Write the diagnostic characters of the family Apocynaceae with its general floral formula. Give the botanical name of any two economically important plants of the family with their uses. (2019)

UNIT-3: APPLIED BOTANY & ETHNOBOTANY

OBJECTIVE TYPE

(1 MARK QUESTIONS)

- a) In which of the following soil pH, tea would be preferably grown? (2016)
- i) pH7
 - ii) pH10
 - iii) pH5
 - iv) pH14

b) The study of relationship of man with plants regarding the faiths in good or bad powers of plants, taboos, avoidances, sacred plants, worship and folklore is called (2017)

- i) ethnomycology
- ii) concrete ethnobotany
- iii) abstract ethnobotany
- iv) medico ethnobotany

c) The suitable temperature required for the best growth of tea lie between (2018)

- i) 15.5° C to 24° C
- ii) 24° C to 35° C
- iii) 20° C to 32° C
- iv) 10° C to 27° C

d) The alkaloid reserpine is isolated from (2019)

- i) *Rauvolfia*
- ii) *Cinchona*
- iii) *Adhatoda*
- iv) *Datura*

VERY SHORT ANSWER TYPE

(1 MARK QUESTIONS)

a) What is ethnogynaecology? (2016)

b) Where in India, research work on the genetic improvement of potato has been done? Name the institute. (2016)

c) Who coined the term 'ethnobotany' and when? (2017, 2019)

d) What is the active alkaloid present in *Adhatoda*? (2017)

e) Define ethno-etymology. (2018)

f) Name any two improved varieties of potato. (2018)

g) Which is the most suitable soil pH for normal growth of the rice crop? (2019)

SHORT ANSWER TYPE

(3 MARKS QUESTIONS)

- a) Distinguish between concrete and abstract ethnobotany by giving suitable examples. (2016, 2018)
- b) Mention the active drug compound of plant origin; the scientific name of the plant and its part from which the drug is extracted which are traditionally used in the treatment of the following ailments :(2016)
- i) Malaria
 - ii) Nervous disorder and epilepsy
 - iii) Cough and cold
- c) Distinguish between pine wood and teak wood on the basis of wood characteristic and its uses. (2017, 2019)
- d) Write a short note on the processing of green tea. (2017)
- f) What are the suitable soil and climatic conditions for the best growth of teak? (2018)

(6 MARKS QUESTIONS)

- a) What is timber? Mention the botanical names, families and uses of two timber-yielding plants found in Manipur. (2016)
- b) Write a short account on the vavilov's centre of origin of crop plants. (2017)
- c) Mention the botanical names, families and uses of any two medicinal plants included in your syllabus. (2018)
- d) Mention the botanical name and family of tea. Write the different steps in the processing of brick tea. (2019)

UNIT-4: PLANT ANATOMY

OBJECTIVE TYPE

(1 MARK QUESTIONS)

- a) If a signboard was nailed to the side of a tree trunk 1.5 m above the ground in the year 2005, how high would it be in 2015, if the tree grows taller each year? (2016)
- i) 1.5 m
 - ii) 3.1 m

- iii) 6.2 m
 - iv) 0.5 m
- b) In the stem of monocotyledons, cambium if present, arises in the (2017)
- i) epidermis
 - ii) subepidermal layers
 - iii) vascular bundle
 - iv) innermost layer of cortex
- c) The cells of fusiform initials of vascular cambium are (2018)
- i) rod -shaped
 - ii) isodiametric
 - iii) spindle -shaped
 - iv) cylindrical
- d) Hardness of secondary wood is mainly due to (2019)
- i) lignification
 - ii) suberization
 - iii) pectinization
 - iv) deposition of cuticle

VERY SHORT ANSWER TYPE

(1 MARK QUESTIONS)

- a) What are bordered pits? (2016)
- b) Differentiate between sieve tube and sieve cell. (2016, 2019)
- c) Name three histogen layers in the shoot apical meristem as proposed by Haustein (1868). (2017)
- d) Mention the name of one plant which possesses cortical bundle. (2017)
- e) Why secondary growth does not occur in monocot stem in majority? (2018)
- f) Mention different types of complex tissues found in plant body. (2018)
- g) In stems of conifers and angiosperms, true endosperm is lacking .Why? (2019)

SHORT ANSWER TYPE

(3 MARKS QUESTIONS)

- a) Describe, in short, the anomalous structure of *Amaranthus* stem. (2016)
- b) Draw and label the different types of simple permanent tissue found in plant. (2016)
- c) Differentiate between fibres and sclereids with three points. (2017)
- d) How does growth in thickness take place in plants? Explain in brief. (2017)
- e) What is meristem? How do they classify according to their function? Mention one function each of
different zones. (2018)
- f) Based on tunica corpus theory, explain the organisation of shoot apical meristem in angiosperm. (2019)
- g) Give three points of difference between simple pit and bordered pit. (2019)

(6 MARKS QUESTIONS)

- a) Discuss, in detail, the histogen and tunica corpus theories referring to the structural development and
differentiation of shoot apex in flowering plant. (2016)
- b) Described with neat labelled diagrams various types of vascular bundles found in plant. (2017)
- c) Describe how anomalous secondary growth takes place in *Amaranthus*. (2018)
- d) What is vascular bundle? Describe with sketches the different types of vascular bundles. (2019)

UNIT-5: EMBRYOLOGY & PALYNOLOGY

OBJECTIVE TYPE

(1 MARK QUESTIONS)

- a) 'NPC system' of pollen/spore classification was proposed by (2016)
 - i) P.K.K.Nair
 - ii) p. Maheshwari
 - iii) Wadehouse R.P.
 - iv) G.Erdtman

b) The diploid structure present in the ovule of angiosperm just before fertilization is **(2017)**

- i) nucellus
- ii) polar nucleus
- iii) synergid
- iv) antipodal

c) The phenomenon of polyembryony was first discovered by **(2018)**

- i) Maheshwari
- ii) Leeuwenhock
- iii) Linnaeus
- iv) L.swamy

d) Melissopalynology is the study of **(2019)**

- i) pollen grains found in the atmosphere
- ii) pollen morphology of seed plants
- iii) pollen and spores present in honey
- iv) pollen grains that are associated with insects

VERY SHORT ANSWER TYPE

(1 MARK QUESTIONS)

a) Draw a campylotropous ovule and label its parts. **(2016)**

b) What is pollen kit? **(2016)**

c) Identify a tetrasporic embryo sac characterised by the presence of a large number of antipodals. **(2017)**

d) Distinguish between porate and colpate pollen grains. **(2017)**

e) What is the function of tapetum? **(2018)**

f) Endosperm formation is suppressed in some families. Mention any one of them. **(2018)**

g) Identify a tetrasporic embryo sac characterised by the presence of three haploid cells at the micropylar end, three triploid antipodal cells and a tetraploid secondary nucleus at the centre. **(2019)**

h) When is polarity of a pollen grain best detected? **(2019)**

SHORT ANSWER TYPE

(3 MARKS QUESTIONS)

- a) Write a short note on sporoderm stratification. (2016)
- b) Differentiate between dicot embryo and monocot embryo with only three points. (2016, 2019)
- c) Identify a tetrasporic embryo sac characterised by the presence of a large number of antipodals. (2017)
- d) Distinguish between porate and colpate pollen grains. (2017)
- e) Write about the basic concepts of aeropalynology. (2018)
- f) Draw and label an anatropous ovule. (2018)
- g) Name the process beginning with syngamy and ending in triple fusion in angiosperms. Who discovered it? Explain the process. (2019)

(6 MARKS QUESTIONS)

- a) What is endosperm? Give an illustrated account of the various types of endosperm found in angiosperms. (2016, 2019)
- b) Explain in detail the process of double fertilization and its significance in plant life. (2017)
- c) With labelled diagram, explain the different steps of the development of a typical female gametophyte in angiosperm. (2018)