(23)

Sr. No. of Question Paper : 7383

Unique Paper Code : 32161301

Name of the Paper : Anatomy of Angiosperms

Name of the Course : **B.Sc. (Hons) Botany**

Semester : III

Duration : 3 Hours   Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Question No. 1 is compulsory and attempt **five** questions in all.

3. Draw well labelled diagrams wherever required and answer all parts of question together.

1. (a) Define the following (**any five**)   (5×1=5)

   (i) Passage cell

   (ii) Plastochrone

   (iii) Tension wood

(iv) Angular collenchyma

(v) Ray tracheid

(vi) Lysigenous cavity

(b) Match the following: (5×1=5)

(i) Vesselless angiosperms   (a) Ficus

(ii) Casparian strip   (b) Root hair

(iii) Bulliform cells   (c) Trochodendron

(iv) Trichoblast   (d) Endodermis

(v) Cystolith   (e) Grasses

(c) Give suitable examples where following are present
(any five) (5×1=5)

(i) Brachysclereids

(ii) Amphicribral vascular bundle

(iii) Lacunar collenchyma

(iv) Velamen

(v) Glandular trichome

(vi) Articulated laticifer

2. Write short notes on **any three** of the following:

(3×5=15)

(a) KorperKappe theory

(b) Application of plant anatomy in systematics

(c) Origin of lateral roots

(d) Lenticels

(e) Hydathodes

3. Differentiate between **(any five)** (5×3= 5)

(a) Storied and Non storied cambium

(b) Ray and fusiform initials

(c) Heart and sap wood

(d) Vessel and tracheid

(e) Simple and bordered pits

(f) Collenchyma and sclerenchyma

(g) Ring porous and diffuse porous wood

4. (a) Elaborate the process of secondary growth in dicot stem. (10)

(b) Define quiescent centre and its significance. (5)

5. Draw well labelled diagrams (any three)   (5×3=15)

    (a) T.S. Dicot root

    (b) V.S. shoot apex

    (c) Kranz anatomy

    (d) T.S. wood showing tyloses

    (e) Periderm

6. (a) Elucidate the anatomical adaptations in xerophytes.
                                                    (10)

    (b) Explain seasonal activity of cambium   (5)

7. (a) Discuss various types of stomata present in angiosperms with suitable examples.   (10)

    (b) Elaborate cytodifferentiation of sieve tube elements.
                                                    (5)

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Sr. No. of Question Paper : 7384

Unique Paper Code   : 32161302

Name of the Paper   : Economic Botany

Name of the Course   : **B.Sc. (Hons.) Botany**

Semester   : III

Duration : 3 Hours   Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt **Five** questions in all including question No. **1** which is compulsory.

3. All parts of a question must be answered together.

4. All questions carry equal marks.

5. Draw labelled diagrams and write the botanical name wherever necessary.

1. (a) Give botanical name and family of the following:

    (5×1)

P.T.O.

(i) Plant that causes Lathyrism

(ii) Plant roots of which are used for making screen in coolers

(iii) Plant that yields digitalin

(iv) Plant leaves of which are used for wrapping tobacco in bidi

(v) Plant that is known as "King of Spices"

(b) Match the following: (5×1)

(i) Papaver sominiferum   (a) Ginning

(ii) Corchorus capsularis   (b) Ratooning

(iii) Linum usitatissimum   (c) Lancing

(iv) Gossypium hirsutum   (d) Retting

(v) Saccharum officinarum   (e) FLax

(c) Expand **any five** of the following: (5×1)

(i) IPR

(ii) CRRI

(iii) CTRI

(iv) NBPGR

(v) IARI

(vi) CPRI

2. Draw labelled diagrams of **any three** of the following (Write botanical name and family): (3×5=15)

(i) L.S. of clove

(ii) Portion of sugar cane stem

(iii) T.S. of schizocarpic fruit

(iv) L.S. cotton seed

3. Differentiate between **any five** of the following: (5×3=15)

(i) Fatty oils and essential oils

(ii) Porous wood and non-porous wood

(iii) C. capsularis and C. olitorius

(iv) Flue curing and sun curing

(v) Black tea and Green tea

(vi) Millets and Cereals

4. Write short note on **any five** of the following: (5×3=15)

(i) Vavilov's concept of centres of origin of cultivated plants

(ii) Bi-products of sugarcane industry

(iii) Tapping of latex from para rubber tree

(iv) Tobacco and its Health hazards

(v) Extraction methods of essential oils

(vi) TPS technology

5. Write botanical name, family, part used and economic importance of any five the following: (5×3=15)

(i) Saffron

(ii) Linseed

(iii) Teak

(iv) Cotton

(v) Mustard

(vi) Wheat

(vii) Groundnut

6. (a) Coconut is a multi- purpose plant. Comment on the statement.   (5)

(b) Write note on importance of legumes to man and ecosystem.   (5)

(c) Give a detailed account of the morphology and economic importance of wheat.   (5)

7. (a) What is retting? Explain this process in jute. (5)

(b) Write botanical name, family, part used and chemical constituents of any two drug yielding plants you have studied   (5)

(c) Comment on the advantages and disadvantages of Green Revolution.   (5)

Your Roll No...2019...

Sr. No. of Question Paper : 7385   J

Unique Paper Code   : 32161303

Name of the Paper   : Genetics

Name of the Course   : **B.Sc. (Hons.) Botany**

Semester   : III

Duration : 3 Hours   Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt **Five** questions in all.

3. Question No. **1** is compulsory.

1. (a) Give contributions of the following scientists (any 5) :   (1×5)

    (i) Nilsson-Ehle

    (ii) R. C. Punnett

P.T.O.

(iii) L. Cuenot

(iv) H. J. Muller

(v) Hugo de Vries, K. Correns, E. Tschermark

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(vi) S. Benzer

(b) Define the following terms (any 5) :   (1×5)

   (i) Holandric genes

   (ii) Allele

   (iii) Chi-square test

   (iv) Recon

   (v) Karyotype

   (vi) Allopatric speciation

(c) Expand the following (any 5) :   (1×5)

   (i) SRY

   (ii) QTL

   (iii) 5-BU

(iv) F1

(v) NTG

(vi) cM

2.   Write short notes on the following (any 3) :   (5×3)

   (a) Multiple Alleles

   (b) ClB experiment

   (c) Cis-trans complementation test

   (d) Kappa particle inheritance in *Paramecium*

3.   Differentiate between the following (any 3) :   (5×3)

   (a) Physical and Chemical mutagen

   (b) Euploidy and Aneuploidy

   (c) Dominance and Epistasis

   (d) Continuous and discontinuous variations

4.   (a) Explain Hardy-Weinberg Law with an example.   (8)

(b) Discuss maternal influence with the help of an example. (7)

5. (a) Describe pre-zygotic and post-zygotic mechanisms of reproductive isolation in Angiosperms. (8)

(b) What do you understand by expressivity and penetrance? (5)

(c) Explain test cross. (2)

6. (a) Explain lethal alleles and their inheritance with examples. (6)

(b) What is chromosomal inversion? Discuss its consequence during gamete formation. (9)

7. (a) In *Drosophila*, Lyra *(Ly)* and Stubble *(Sb)* are dominant mutations located on two separate loci on chromosome 3. A recessive mutation with bright red eyes was also shown to be on chromosome 3. Progeny is obtained by crossing a female who is heterozygous for all three mutations to a male homozygous for bright red mutation *(br)*. The

following data is generated :

Phenotype			Number
Ly	Sb	br	404
+	+	+	422
Ly	+	+	18
+	Sb	br	16
Ly	+	br	75
+	Sb	+	59
Ly	Sb	+	4
+	+	br	2

(i) Calculate Non crossover, Single crossover and Double crossover frequencies. (6)

(ii) Determine the correct gene sequence and the map distance between each loci. (3)

(iii) Calculate Coefficient of coincidence (C) and Interference (I). (3)

(b) Explain genetic drift and its implications. (3)