(19) 03/12/2018

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 34 **I**

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. Attempt **five** questions in all including Question No. **1** which is compulsory.
3. All parts of a question must be attempted together.

1. (a) Define the following (any **five**) : (5×2=10)

   (i) Casparian strips

   (ii) Aerenchyma

   (iii) Bulliform Cells

P.T.O.

(iv) Dendrochronology

(v) Cystolith

(vi) Phellem

(vii) Plasmodesmata

(b) Fill in the blanks (any **five**) : (5×1=5)

(i) Calcium carbonate crystals found in leaves of *Ficuselastica* are called .....

(ii) Concentric vascular bundle in which phloem surrounds xylem is called as .....

(iii) In wood, elements of xylem are often blocked by balloon-like ingrowths known as .....

(iv) Sclereids with dilated ends resembling bones are called as .....

(v) Histogen theory was given by .....

(vi) Sugarcane leaves show special type of anatomy known as .....

(vii) Water secretion from margins of leaves occurs through pores called .....

2. Write short notes on the following (any **three**) : (5×3=15)

(i) Applications of Plant Anatomy in pharmacognosy

(ii) Types of trichomes in plants

(iii) Kranz anatomy

(iv) Tunica Corpus Theory

(v) Laticifers

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

(i) Primary and secondary xylem

(ii) Cork cambium and vascular cambium

(iii) Lenticels and stomata

(iv) Ring porous and diffuse porous wood

(v) Fibers and sclereids

(vi) Tracheids and vessels

(vii) Amphivasal and amphicribal vascular bundles

4. Draw well labelled diagrams of (any **three**) : (5×3=15)

(i) T.S. monocot stem

(ii) V.S. *Zea mays* leaf

(iii) T.S. dicot stem with secondary growth

(iv) T.S. *Nymphaea* petiole

(v) V.S. lenticel

5. (i) Discuss secondary growth in dicot root along with suitable diagrams. (7.5)

(ii) Describe the structure and function of sieve elements. (7.5)

6. (i) Describe the structure and function of simple tissues with well labelled diagram. (7.5)

(ii) Give a brief illustrated account of anatomical adaptations of xerophytic plants. (7.5)

7. (i) Discuss the organization of root apex with suitable theories. Illustrate with diagrams. (7.5)

(ii) What is wood? Discuss different types of wood: Reaction wood, tension wood, early and late wood, heart wood and sap wood. (7.5)

8/12/2018

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 35

Unique Paper Code : 32161302

Name of the Paper : Economic Botany I

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

Semester : III

DESHBANDHU COLLEGE LIBRARY Kalkaji, New Delhi-19

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 paper has **SEVEN** questions. **All** questions carry equal marks.
3. Attempt **FIVE** questions in ALL. Question No. **1** is compulsory.
4. All parts of a question must be attempted together.

1. (a) Mention Botanical Name of **any five** of the following : (1×5=5)

   (i) Poppy

   (ii) Otto of Roses

   (iii) Vegetable Gold

P.T.O.

(iv) Saffron

(v) Noble Cane

(vi) Linseed

(b) Define **any five** of the following terms : (1×5=5)

(i) Iodine Number

(ii) Bagasse

(iii) Dimorphic Branching

(iv) Parboiling

(v) Geocarpic Fruit

(vi) Adjunct

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

(i) IRRI

(ii) NBPGR

(iii) SBI

(iv) RRIM

(v) IARI

(vi) CPRI

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

(i) Drying Oil & Non-Drying Oil

(ii) Cotton Fibre & Jute Fibre

(iii) Flue Curing & Fire Curing

(iv) Heartwood & Sapwood

(v) Enfleurage & Maceration

(vi) Gynophore & Carpophore

3. Mention the Botanical Name, Family Name, Plant Part Used, Chemical Constituents and Economic Uses of **any five** of the following : (1+0.5+0.5+1+2=5) (3×5=15)

(i) Foxglove

(ii) Tea

(iii) Sarpagandha

(iv) Tobacco

(v) Clove

(vi) Fever Bark Tree

4. Explain **any three** of the following : (5×3=15)

(i) Retting of Jute

(ii) Properties of Wood

(iii) Nobilization

(iv) Chemistry and Processing of Coffee

5. Mention Botanical Name, Family Name and Draw Well Labeled Diagram of **any three** of the following : (1+1+3=5) (5×3=15)

(i) L.S. Cotton Seed

(ii) T.S. Fennel Mericarp

(iii) T.S. Potato Tuber

(iv) Stalk of Sugarcane

6. Write short notes on **any three** of the following : (5×3=15)

(i) Millets

(ii) Processing of Edible Vegetable Oil

(iii) Importance of Legumes

(iv) Tobacco and Health

7. Discuss **any three** of the following : (5×3=15)

(i) Processing and Uses of Rubber

(ii) Vavilov's work on Origin of Cultivated Plants

(iii) Evolution of Bread Wheat

(iv) Classification of Aromatic Vegetable Products

(21) 15/12/2018

This question paper contains 4+2 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **36**

Unique Paper Code : **32161303**

Name of the Paper : **Genetics**

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

Semester : **III**

DESHBANDHU COLLEGE LIBRARY Kalkaji, New Delhi-19

Duration : **3 Hours** Maximum Marks : **75**

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

Attempt *five* questions in all.

Question No. **1** is compulsory.

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

(*i*) Pseudoallele

(*ii*) Plaque

(*iii*) Alkylating Agents

(*iv*) Hemizygous

(*v*) Polygenic Inheritance

(*vi*) Test Cross.

P.T.O.

3. (*a*) Write short notes on any *two* : 2×5=10

(*i*) Hardy Weinberg's Law

(*ii*) rII locus in bacteriophage T4

(*iii*) Genetic mechanism of leaf variegation in Four o'clock plant.

(*b*) An allele W, for white wool is dominant over allele *w* for black wool. In a sample of 900 sheep, 891 are white and 9 are black. Calculate allelic frequencies within this population, assuming, the given population is in Hardy-Weinberg equilibrium. 4

4. (*a*) Elaborate ClB method for detecting mutations. 7

(*b*) Using a forked line method list the genotypes for the following dihybrid crosses : 7

DdGg × DdGg

D/d Plant height (Tall and Dwarf)

G/g Seed color (Yellow and Green)

5. (*a*) How has polyploidy contributed towards evolution of agriculture crops ? Elaborate with any *two* suitable examples. 10

(*b*) Describe criss-cross inheritance giving a suitable example. 4

6. (*a*) Explain the experiment that provided cytological proof of crossing over. 8

(*b*) Discuss base excision repair mechanism of DNA damage repair. 6

7. Ebony body colour (*e*), rough eyes (*ro*), brevis bristles (*bv*) are three recessive mutations in fruit flies. A wild type fly (*e+ ro+ bv+*), was crossed with triple mutant fly (*e ro bv*). F_1 progeny were heterozygous and they were crossed with mutant homozygous recessive males. The results of the test cross are as follows :

Wild type	*e+ ro+ bv+*	625
Ebony, rough eyes, brevis bristles	*e ro bv*	634
Ebony	*e ro+ bv+*	165
Rough eyes, brevis bristles	*e+ ro bv*	158
Brevis bristles	*e+ ro+ bv*	93
Ebony, rough eyes	*e ro bv+*	91
Rough eyes	*e+ ro bv+*	5
Ebony, brevis bristles	*e ro+ bv*	4

(*a*) Are the above genes linked ? Give reasons for your answer. 2

(*b*) Diagram the crosses giving the genotype of parents and F_1. 3

(*c*) What is the order of the genes ? 2

(*d*) Calculate the map distance between the genes and construct the linkage map. 3

(*e*) Calculate the coefficient of coincidence. 2

(*f*) Calculate the interference and comment on its significance. 2