2023

BOTANY

(Honours Core)

Paper : BOT–HC–3016

(Morphology and Anatomy of Angiosperm)

Full Marks : 60

Time : Three hours

*The figures in the margin indicate
full marks for the questions.*

1. Answer the following : 1×7=7

   (a) Which tissue of the leaf contains chloroplast ?

   (b) What is laticifer ?

   (c) What is quiescent centre ?

   (d) Write the name of flattened petiole of Australian *Acacia*.

(e) Write the types of vascular bundle in dicot root.

(f) When anthers are united but the filaments remain free the condition is called _____. *(Fill up the gap)*

(g) The only living element in xylem tissue is _____. *(Fill up the gap)*

2. Answer the following very shortly : 2×4=8

(a) Schizocarpic fruits.

(b) Tyloses and Tylosoid.

(c) Distinguish between Tracheid and Vessels.

(d) Spikelet.

3. Answer *any three* of the following :
5×3=15

(a) Distinguish between internal structure of Dicot and Monocot stem.

(b) Cohesion of stamen.

(c) Anatomical and physiological adaptations of Xerophytes.

(d) Distinguish between cambium and Cork cambium.

(e) Distinguish between Racemose and Cymose inflorescences.

4. Answer the following questions : *(any three)*
10×3=30

(a) What is Secondary Growth ? Describe in detail about Secondary Growth in dicotyledonous stem with neat diagram.
2+8=10

(b) What is the difference between tissue and tissue system ? Describe the epidermal tissue system with special reference to epidermal outgrowths.
1+9=10

(c) Define permanent tissues. How are they classified ? Describe different types of simple tissues with neat diagram.
2+2+6=10

(d) Describe briefly about the role of anatomy in solving the problems of plant systematics.

(e) Write briefly the principal changes that occur in the sapwood during its progression into heartwood ? How would you differentiate the former from the latter ? Which of these two is economically more important ?

5+4+1=10

(f) What do you mean by Phyllode ? Describe briefly about the Phyllode theory, and its significance.

2+7+1=10

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2023

BOTANY

(Honours Core)

Paper : BOT–HC–3026

(Economic Botany)

Full Marks : 60

Time : Three hours

The figures in the margin indicate
full marks for the questions.

1. Answer the following : 1×7=7

   (a) Name the centre of origin of coffee.

   (b) What is sattu ?

   (c) What is retting ?

   (d) What is the importance of legumes in our meal ?

   (e) What type of fiber is cotton ?

Contd.

(f)   Name a drug obtained from opium poppy.

(g)   Mention the use of bagasse.

2.   Answer the following questions :   2×4=8

(a)   Mention the uses of rice bran.

(b)   What is crepe rubber ?

(c)   Differentiate green tea from black tea.

(d)   Mention the health hazards of tobacco.

3.   Answer **any three** of the following questions :   5×3=15

(a)   Write a note on the role of legumes in eco-system.

(b)   Mention the importance of germpasm diversity.

(c)   Write a comparative account on fatty oils and essential oils.

(d)   Write a note on habit-forming drugs.

(e)   Mention the uses of teak and pine wood.

4.   Answer the following questions : *(any three)*
10×3=30

(a)   Describe the various centres of the origin of cultivated plants given by Vavilov.

(b)   Give an account of millets cultivated in India.

(c)   Give an account of morphology and processing of sugarcane mentioning the products and byproducts of sugarcane industry.

(d)   Give an account of essential oils mentioning their sources and uses.

(e)   Give an account of morphology, process of extraction and uses of jute.

(f)   Give a general account of spices grown in India mentioning their economic importance and parts used.

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2023

BOTANY

(Honours Core)

Paper : BOT–HC–3036

(Genetics)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions :   1×7=7

   (a) What is the difference between complete and incomplete penetrance ?

   (b) What is the importance of speciation ?

   (c) _____ are the substances which have almost similar structure and can substitute bases in DNA strand.

(d) The ability of a molecule to exist in more than one chemical form is called _____.

(e) _____ and _____ proposed one gene–one enzyme hypothesis in 1948.

(f) Each gene occupies specific position called _____.

(g) _____ is the change in frequency of an existing gene variant in the population due to random chance.

2. Answer the following questions briefly : 2×4=8

(a) Who categorised gene into cistron, recon and muton ? Is cistron a functional unit of DNA ?

(b) Differentiate between euploidy and aneuploidy.

(c) How does linkage affect recombination ?

(d) Differentiate between mit. DNA and nuclear DNA.

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

(a) Salient features of Chromosome theory of heredity

(b) Crossing over

(c) DNA Repair mechanism

(d) Translocation

(e) Hardy Weinberg law

4. Answer **any three** of the following question : 10×3=30

(a) Is Extranuclear Inheritance, Mendelian ? Explain the phenomenon with the help of examples. 1+9=10

(b) What is point mutation ? Describe the various types of point mutations with the help of examples. 2+8=10

(c) "A crossing over in paracentric inversion results in formation of one acentric chromatid and a dicentric chromatid." Explain in detail with the help of diagram.

(d) Distinguish between autosomes and sex chromosomes. Discuss in detail sex-linked inheritance. 3+7=10

(e) Why did Mendel select pea plant as his experimental material ? State the reasons for his success. When pink flowered plants were crossed, they produced white and red flowered plants. Explain the phenomenon. 2+2+6=10

(f) "Coupling and repulsion phases are two aspects of the same phenomenon." Name the phenomenon and justify the statement.