No. of Printed Pages : 3

Sem-V-Bot-CC-11
(Reg&Back)

2020-21

Time - 3 hours

Full Marks - 60

*Answer **both groups** as per instructions.*
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Write notes on <u>any five</u> of the following with two important sentences each. [2 × 5

   (a) Ribonucleotides

   (b) RNA as genetic agent

   (c) Okazaki fragments

   (d) Central dogma in biology

   (e) Spliceosome

   (f) Polycentric m-RNA

   (g) Activator protein

P.T.O.

GROUP - B

*Answer **ALL** questions.*

2. With the help of Hershey and Chase experiment, explain DNA as the carrier of genetic information. [10

OR

Write notes on any two : [5 × 2

(a) Work of Avery, Mc Leod and Mc Carty

(b) Characteristics of genetic material

(c) Griffith's experiment

3. Describe the structure and salient features of double helix model of DNA given by Watson and Crick. [10

OR

Write notes on any two : [5 × 2

(a) Prokaryotic DNA replicating enzymes

(b) Euchromatin structure and function

(c) Rolling circle replication

4. What is genetic code ? Discuss the salient features of genetic code. [10

OR

Write notes on any two : [5 × 2

(a) Split gene

(b) Processing of eukaryotic m-RNA

(c) Initiation of transcription

5. Describe the structure and assembly of prokaryotic and eukaryotic ribosomal subunits. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Charging of t-RNA

(b) Elongation of polypeptide chain

(c) Termination and post translational modification of protein

6. Give an account of Operon model for regulation of tryptophan synthesis in *E. coli.* [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Transription factors

(b) Lac-operon

(c) Gene silencing

No. of Printed Pages : 3

Sem-V-Bot-CC-12
(Reg&Back)

2020-21

Time - 3 hours

Full Marks - 60

*Answer **both groups** as per instructions.*
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Write notes on any five of the following with two important sentences each. [2 × 5

   (a) Symplast and Apoplast pathways

   (b) Donan equilibrium

   (c) Abscisic acid

   (d) Essential and Beneficial elements

   (e) Vernalin

   (f) Criteria for essentiality

   (g) Photo periodism

P.T.O.

GROUP - B

*Answer **ALL** questions.*

2. Describe the mechanism of active and passive absorption of water in higher plants. [10

OR

Write notes on any two : [5 × 2

(a) Guttation

(b) Cohesion-Tension theory

(c) Source Sink relationship

3. What are trace elements ? Explain their role and deficiency symptoms in plants. [10

OR

Write notes on any two : [5 × 2

(a) Role of chlorine and Molybdenum in plants

(b) Use of nutrient solution

(c) Hydroponics

4. Enumerate the proton ATPase pump and ion influx in plants. [10

OR

Write notes on any two : [5 × 2

(a) Facilitated diffusion

(b) Carriers and Channels

(c) Electrochemical gradients

5. Give the structure of Gibberellins and describe the physiological effects of GA. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Discovery and transport of Auxin

(b) Ethylene

(c) Role of cytokinin

6. What is dormancy ? Explain various causes of dormancy of seeds and the methods of breaking dormancy. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Photoperiodism

(b) Chemical nature of phytochrome

(c) Flowering stimulus

No. of Printed Pages : 3

Sem-V-Bot-DSE-1
(Reg&Back)

2020-21

Time - 3 hours

Full Marks - 60

*Answer **both groups** as per instructions.*
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Write notes on any five of the following in two or three sentences each. [2 × 5

   (a) Undesirable consequence of plant breeding

   (b) Polygenic inheritance

   (c) Hybrid vigour

   (d) Hybridization

   (e) Acclimitization

   (f) Domestication of crop plants

   (g) Role of mutation in crop improvemets

P.T.O.

GROUP - B

*Answer **ALL** questions.*

2. Describe various objectives of plant breeding with suitable examples. [10

OR

Write notes on any two : [5 × 2

(a) Important achievements of plant breeding

(b) Mode of reproduction in crop plants

(c) History of plant breeding in India

3. Give an account of the procedure followed during plant hybridization programme. [10

OR

Write notes on any two : [5 × 2

(a) Pureline selection

(b) Domestication of crop plants

(c) Plant genetic resources

4. What is monogenic inheritance ? How does it differ from polygenic inheritance ? Explain with suitable examples. [10

OR

Write notes on any two : [5 × 2

(a) Concept of quantitative inheritance

(b) Role of environment in quantitative inheritance

(c) Penetrance and Expressivity

5. Give a note on the genetic basis of inbreeding depression. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Physiological aspects of Heterosis

(b) Dominance hypothesis

(c) Achievements in crop improvements

6. Describe the role of mutation in crop improvements. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Organogenesis

(b) Morphological and cytological features of Autopolyploidy

(c) Role of Allopolyploidy in crop improvements

No. of Printed Pages : 3

Sem-V-Bot-DSE-2
(Reg&Back)

2020-21

Time - 3 hours

Full Marks - 60

*Answer **both groups** as per instructions.*
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP - A

1. Write notes on any five of the following in two or three sentences each. [2 × 5

   (a) Ex-situ conservation

   (b) Non-degradable wastes

   (c) Soil degradation

   (d) CBD

   (e) EIA

   (f) Carbon footprint

   (g) Aquifers

P.T.O.

GROUP - B

*Answer **ALL** questions.*

2. What is Sustainability ? Describe various types of natural resources. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Biotic resources

(b) Mineral resources

(c) Concept of sustainable utilization

3. Explain the methods of utilization and degradation processes of land resources. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Marine-water resources

(b) Estuarine

(c) Biological methods of management of soil degradation

4. Explain forest as a biological resource and describe its significance and management. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) IPR

(b) Major and minor forest products

(c) Bioprosperity

5. Explain various types of non-renewable energy resources. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) Non-conventional source of energy

(b) Participatory resources appraisal

(c) GIS

6. What are the sources of solid wastes ? Describe the management method of non-biodegradable wastes. [10

OR

Write notes on <u>any two</u> : [5 × 2

(a) National efforts in resources management

(b) Waste management

(c) Conservation of resources