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PGIIIS-805 A-21

M.Sc. III Semester Degree Examination

BOTANY

Genetics, Cell and Molecular Biology

Paper : BOT: HCT : 3.1

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

1. Answer any **Five** questions.
2. Question No. **1** is **compulsory.**

Answer in **One** or **Two** sentences. **(10×2=20)**

1. a) Operon.

b) Epigenetic.

c) RNA editing.

d) Genetic code.

e) Barr bodies.

f) Dosage Compen.

g) P - elements.

h) t-RNA synthetase.

i) Gene silencing.

j) Oncogenes.

2. Discuss the chromosomal theory of sex determination. **(15)**

3. What are transposable elements? Explain with examples taking from maize. **(15)**

4. Discuss briefly the structure and function of different types of RNA add a note on RNA transport. **(15)**

5. Give an account of the therapeutic interventions of uncontrolled cell growth. **(15)**

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

   a) Hardy - Weinberg's law.

   b) DNA damage and repair mechanism.

   c) RNA Polymerases.

   d) Regulations of Phages.

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PGIIIS-806 A-21

M.Sc. III Semester Degree Examination

BOTANY

Plant Physiology And Metabolism

Paper : BOT: HCT : 3.2

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

1. Answer any **Five** questions.
2. Question No. **1** is **compulsory.**

Answer in **One** or **Two** sentences. **(10×2=20)**

1. a) Histone.

b) Monosaccharides.

c) α - oxidations.

d) Cytoplasmic respiration.

e) Gibberlins.

f) Hydrogenase.

g) Nif genes.

h) Kranz anatomy.

i) RUBISCO.

j) Abiotic Stress.

2. Write an account on extraction and purification of enzymes. **(15)**

3. Differentiate between C_3 and C_4 cycles of carbon fixation of Photosynthesis. **(15)**

4. Discuss briefly the biosynthesis, metabolism, transport and physiological effects of Abscisic acid. **(15)**

5. Describe existence of rhythmic mechanism in photoperiodic behavior. **(15)**

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

a) Leg hemoglobin.

b) β - oxidation.

c) Synthesis and degradation of sucrose.

d) Cold stress.

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M.Sc. III Semester Degree Examination

BOTANY

Genetic Engineering

Paper : BOT: SCT : 3.3.1

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Answers any **Five** questions.

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

Answer in **One** or **Two** sentences. **(10×2=20)**

1. a) PstI

b) Bolivar and Rodriguez

c) Blunt end

d) Antigen

e) Junk DNA

f) Nitrocellulose.

g) dNTPs

h) Adaptor primers.

i) Ri - Plasmid

j) PEG

2. Write the enzymes used in Genetic engineering. **(15)**

3. Give an account of the applications of transposons in research and health care system. **(15)**

4. Describe the molecular markers and its applications in molecular breeding. **(15)**

5. Explain the detailed method of agrobacterium mediated genetic transformation. **(15)**

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

   a) Expression vectors.

   b) Construction of cDNA library.

   c) Polymerase chain Reaction.

   d) Marker and Reporter genes.
