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**PG3S-378-A-23**  
**M.Sc. III Semester Degree Examination**  
**BOTANY**  
**Genetic Engineering**  
**Paper -BOT: SCT 3.3.1**

**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.
  - i) Meganucleases
  - ii) *BamHI*
  - iii) Ligase
  - iv) Agarose
  - v) Retrotransposons
  - vi) Annealing temperature
  - vii) Polymerase
  - viii) *Vir* genes
  - ix) Biolistics
  - x)  $\beta$ -glucuronidase
2. Write an account on types of restriction enzymes and their nomenclature. **(15)**
3. Discuss the different types of mutations and significance of mutation in evolution. **(15)**
4. Write an account on the principle and components of PCR and its applications. **(15)**
5. Explain different types of transfer of genes using physical delivery methods. **(15)**

Write short notes on any **Three** of the following.

**(3×5=15)**

6. a) Nomenclature and classification of bacteriophages.
  - b) Principle and applications of Southern blotting.
  - c) Molecular markers.
  - d) Trans genes and transgenic plants.
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**PG3S-376-A-23**  
**M.Sc. III Semester Degree Examination**  
**BOTANY**  
**Genetics, Cell and Molecular Biology**  
**Paper -HCT-3.1**

**Time : 3 Hours**

**Maximum Marks : 80**

**Answer in one or two sentences.**

**(10×2=20)**

1. a) Poly genic character.
- b) Test cross
- c) DNA methylation
- d) TATABox
- e) 18S rRNA
- f) Allolactose
- g) Oncogene
- h) Initiation codon
- i) PRB
- j) RNA Editing.

**Answer any Four questions**

2. Explain the factors affecting allelic frequencies in population. **(15)**
3. Describe DNA damage and repair mechanisms. **(15)**
4. Describe the Mechanism of translation. **(15)**
5. Write an account on Cancer cell cycle and add a note on therapeutic interventions of uncontrolled cell growth. **(15)**
6. Write short notes on any Three of the following. **(3×5=15)**
  - a) Cytoplasmic inheritance.
  - b) P-elements in drosophila.
  - c) RNA splicing
  - d) Genetic rearrangements in progenitor cells.

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**PG3S-379-A-23**  
**M.Sc. III Semester (CBCS) Degree Examination**  
**BOTANY**  
**Bioenergy and Biofuels**  
**Paper -BOT: SCT 3.3.2**

**Time : 3 Hours**

**Maximum Marks : 80**

**Note:** Answer any **Five** questions. question no.1 is Compulsory. **(10×2=20)**

1. Answer in **one** or **two** sentences.

- i) World energy crisis
- ii) Bioenergy sources
- iii) Biomass assessment
- iv) Wood chips
- v) Forest residues
- vi) Pellets
- vii) Photobioreactors
- viii) Agricultural residues
- ix) Torrefaction
- x) Bioethanol

2. Enumerate the problems and viable solutions of energy utilization and ecological prospectives. **(15)**
3. Explain the major biofuels and routes to their production. **(15)**
4. Give an account on cultivation of microalgae and biofuel extraction. **(15)**
5. Describe the biofuel production from *Jatropha* and *Castor*. **(15)**

6. Write short notes on any **Three** of the following.

(3×5=15)

- a) Non- replenishable energy
  - b) Types of conservation of biomass
  - c) Chemical characterization of Agricultural biomass
  - d) Anaerobic conversion and biogas generation.
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**PG3S-377-A-23**  
**M.Sc. III Semester Degree Examination**  
**BOTANY**  
**Plant Physiology and Metabolism**  
**Paper -HCT.3.2**

**Time : 3 Hours**

**Maximum Marks : 80**

**Instructions to Candidates: Answer any Five questions. Question No. 1 is compulsory.**

Answer in one or two sentences:

**(10×2=20)**

1.
  - i) Allosteric enzyme
  - ii) Monosaccharides
  - iii) Photolysis of water
  - iv) RUBISCO
  - v) Growth promoters
  - vi) Ammonification
  - vii) Plastocyanin
  - viii) Alpha oxidation
  - ix) Phytochrome
  - x) Biotic stress
2. Give a comprehensive account of glyoxylate pathway and gluconeogenesis. **(15)**
3. Write an account on the plant respiration. **(15)**
4. Describe plant growth hormones. and add a note on their physiological effects. **(15)**
5. Add a note on characteristics of biological rhythms. **(15)**
6. Answer any **Three** of the following. **(3×5=15)**
  - a) Transport across membranes
  - b) C3 cycle
  - c) Leg haemoglobin
  - d) Plant responses to drought stress.

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**PG3S-380-A-23**  
**M.Sc. III Semester Degree Examination**  
**BOTANY**  
**Medicinal Plants (Theory)**  
**Paper -BOT: OET-3.4**

**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.
  - i) Tibetan system of medicine
  - ii) Samuael hahnemann.
  - iii) Ashwagandha.
  - iv) Shustruta samhita.
  - v) Syzygium jambolanum
  - vi) Mushrooms
  - vii) Diabetic plants.
  - viii) Ethano-medicine.
  - ix) Abelmoschus esculentus
  - x) Questionnaire
2. Give an account of Unani and Homeopathic system of medicine. (15)
3. Explain in detail about medicinal values of spices and cereals. (15)
4. Discuss the plants used for the treatment of Nervous disorders and jaundice. (15)
5. Enumerate methods of collecting information and knowledge on medicinal plants. (15)

6. Answer any **Three** of the following.

(3×5=15)

- a) Wild food plants.
  - b) Plants used for gynecological disorders.
  - c) Importance of ethno-botany
  - d) Siddha system of medicine.
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