JKPSC
ROS

Previous Year Paper
(Botany)
Dec, 2020

Total No. of Printed Pages-3] Roll No. _____

2(ROS)0

BOTANY

OPTIONAL

Time Allowed - 3 Hours	*Maximum Marks-200*

INSTRUCTIONS

Read each of the following instructions carefully.

i) *Candidates are in their own interest advised to go through the instructions before attempting the paper.*

ii) *There are eight questions in all, out of which any Five are to be attempted.*

iii) *All questions carry equal marks. The number of marks carried by each question is indicated against it.*

iv) *The questions shall be attempted in sequential order. Partially attempted questions shall also be counted.*

v) *Any page or portion of the page left blank must be clearly struck off by putting cross mark (×).*

vi) *Answers must be written in ENGLISH only.*

vii) *Neat diagrams must be given in questions requiring them.*

viii) *If you encounter any typographical error, please read it as it appears in the text.*

1. a) Differentiate prokaryotes and eukaryotes by giving suitable examples. **(10)**

   b) Explain structure of a soil profile and give physicochemical properties of each layer in it. **(10)**

   c) What are Mendel's laws of inheritance? How these were deduced by Mendel's garden pea experiments? Explain. **(20)**

2. a) What is mitosis? Discuss its various stages and importance in the life cycle of plants. **(20)**

   b) What do you understand by enzymes? Classify different types of enzymes. Name any two important industrial enzymes and give their commercial uses. **(10)**

   c) Explain role of different types of tissues involved in translocation mechanism in plants. **(10)**

3. a) Give an account of post fertilization changes and development of cystocarp and carpospores in *Polysiphonia*. **(20)**

   b) Discuss xerophytes and their specialized adapted features. **(10)**

   c) Give a general account of lichens with suitable examples. **(10)**

4. a) What is photosynthesis? Explain in detail the role of chlorophyll in this phenomena. **(20)**

   b) Draw labelled diagrams of the following : **(2×5=10)**

      i) Parts of a flower

      ii) Alternation of generation in Selaginella.

   c) Define point mutation. What are mutagens? Discuss the process of repair mechanism in damaged DNA. **(10)**

5. a) Give an account of thallus organization in algae. **(10)**

   b) What is seed dormancy? Explain the factors which are responsible for dormancy. Discuss different modes of seed dispersal with examples of each. **(20)**

   c) Depict life cycle of *Marchantia* diagrammatically. **(10)**

6. a) Write a detailed note on late blight of potato **(20)**

   b) Enlist important characteristics of Gymnosperms. How they differ from Angiosperms? **(10)**

   c) What are growth hormones? Explain role of Gibberellins in plant growth. **(10)**

7. a) Write a detailed note on types of medicinal plants available in Jammu and Kashmir. Explain conservation methods adopted by the Government to preserve them. **(20)**

b) What do you understand by mycoplasmas as emerging pathogen in wildlife? **(10)**

c) Draw a well labelled cross section of monocotyledonous stem. **(10)**

8. a) What is genetic engineering? Furnish different steps of recombinant DNA technology used in modifying an organism. **(10)**

b) Give characteristic features of Solanaceae family. **(10)**

c) Explain any **Ten** of the following in brief : **(10×2=20)**

i) Senescence

ii) Osmosis

iii) Macronutrients and their role in plant growth

iv) Photoperiodism

v) CAM plants

vi) Polyploidy

vii) Food poisoning

viii) Biofertilizers

ix) Antibiotics

x) Saprophytes

xi) Ecological Succession

xii) Ecosystem

xiii) Cleistogamy and Chasmogamy.
