MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END THEORY EXAMINATION
B.Sc.(Hons.) Horticulture

Semester	: **IV (New)**	Term	: **Second**	Academic Year	: **2021-22**
Course No.	: **H/SSAC 243**	Title	: **Soil, Water and Plant Analysis**		
Credits	: **2 (1+1)**				
Day & Date	: **Tuesday, 20.09.2022**	Time	: 14:00 to 16:00 hrs	**Total Marks**	: **40**

Note :
1. Solve **ANY EIGHT** questions from **SECTION 'A'.**
2. All questions from **SECTION 'B'** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagram wherever necessary.

SECTION 'A'

Q.1 a) Write the importance and objectives of soil analysis.

b) Write the working principle of pH meter.

Q.2 a) How are plant samples prepared for laboratory analysis?

b) Which are the factors influencing movement of nutrient ions in diffusion mechanism?

Q.3 a) Write the composition of soil and atmospheric air.

b) Define Oxygen Diffusion Rate. How it is measured?

Q.4 a) Write the significant roles of microorganisms in agriculture.

b) Give the nutrient content/ 100 gram of tomato.

Q.5 a) Give the importance of plant tissue analysis.

b) Describe the management practices to be followed for irrigating crops with poor quality irrigation water.

Q.6 a) Classify saline alkaline/sodic soil based on pH, EC and ESP.

b) Classify irrigation water based on SAR.

Q.7 a) Define pollutant. Enlist different soil pollutants.

b) Explain the effects of water logging in agriculture.

Q.8 a) Explain acid soils. Mention its causes of formation.

b) Explain saline soils. Describe the effects of salinity on plant.

Q.9 a) What are radioisotopes? Give the advantages of application of radioisotopes in agriculture.

b) Write the management practices for sandy soils.

Q.10 Explain the mechanisms of transport of ions from soil to roots.

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SECTION 'B'

Q.11 Fill in the blanks:

1) The characteristic feature of saline soil is _____encrustation on surface of soils.

2) SAR = _____.

3) _____ reagent is added to avoid microorganism growth in irrigation water sample.

4) The exchange of gases between soil air and atmospheric air is referred to as_____.

Q.12 Do as directed:

1) Give the name of symbiotic nitrogen fixing bacteria.

2) Passive absorption is nonselective (State True or False).

3) What is the Electrical Conductivity (EC) of water in low salinity class (C_1)?

4) Gypsum is used for reclamation of which type of soils?

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