M.Sc. (Ag.) Examination, 2019
Semester-II
Agronomy
Course : AGR-504
Principles and Practices of Water Management

Time : 3 Hours **Full Marks : 50**

Questions are of value as indicated in the margin.

Answer **any five** questions.

1. a) Define soil moisture tension.
   b) State the forces acting on soil water.
   c) Write the pathway of water movement in SPAC.
   d) Enumerate the energy concept of water absorption. 1.0+2.5+2.5+4=10
2. a) Define Darcy's law.
   b) Explain saturated water movement in vertical soil column.
   c) Discuss the limitations of Darcy's law. 2+4+4=10
3. a) What is soil water potential?
   b) Enumerate the different components of soil water potential.
   c) Write about importance of fertigation.
   d) Mention the measures to reduce salinity hazards in crop field. 2+3+2+3=10
4. a) Define drought.
   b) How does water stress gradually develop in plant?
   c) Write the effect of moisture stress on leaf water potential, photosynthesis and respiration.
   d) Mention the drought escaping mechanism in plants. 1+3+4+2=10
5. a) What is micro-irrigation?
   b) What should be the characteristics of micro-irrigation?
   c) Write the components of micro-irrigation system.
   d) Discuss in brief the irrigation scheduling based on plant as indicator. 1+2+3+4=10
6. a) Define 'Agricultural drainage'.
   b) Discuss the ill effects of water-logging on soil and crop environment.
   c) Discuss about crop management strategies under waterlogged soil condition. 2+(2+2)+4=10
7. a) What do you mean by water use efficiency?
   b) Mention the factors influencing WUE
   c) What is PET?
   d) Discuss about the measures to reduce ET losses in crop field. 2+3+1+4=10

P.T.O.

8. Write short notes (**any five**): 2×5=10
   i) Drainage coefficient
   ii) SAR
   iii) Net irrigation requirement
   iv) Crop factor
   v) Blaney-Criddle formula
   vi) Hydaulic head and gradient
   vii) Water harvesting
   viii) Minor irrigation project

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