3 Hours / 100 Marks   Seat No.

Marks

1. Solve **any ten** :   **20**
   a) Define irrigation.   **2**
   b) State the impact of irrigation on environment.   **2**
   c) Write infiltration formula.   **2**
   d) Write definition of crop-co-efficient.   **2**
   e) Enlist methods of estimation of evapotranspiration.   **2**
   f) Define evapotranspiration.   **2**
   g) State irrigation efficiency.   **2**
   h) Define Delta and Duty.   **2**
   i) Enlist various irrigation methods.   **2**
   j) Enlist the types of check basin irrigation.   **2**
   k) Define furrow irrigation.   **2**
   l) Enlist the types of border irrigation.   **2**
   m) State the types of advanced irrigation methods.   **2**
   n) List out the components of drip irrigation system.   **2**

2. Solve **any four** :   **16**
   a) State advantages and disadvantages of irrigation.   **4**
   b) Explain about soil irrigability classes.   **4**
   c) Explain soil mass and volume relationship.   **4**
   d) State classification of soil water.   **4**
   e) State soil moisture tension and root zone with neat sketch.   **4**
   f) State the factors affecting the infiltration.   **4**

P.T.O.

Marks

3. Solve **any four** :   16
   a) Explain soil moisture constants.   4
   b) Explain soil moisture characteristic curves.   4
   c) Explain saturation capacity.   4
   d) Explain Blaney-Criddle formula.   4
   e) Explain types of irrigation efficiencies.   4
   f) Explain modified penman formula.   4

4. Solve **any four** :   16
   a) Explain field capacity.   4
   b) Explain the methods of measurement of infiltration by any one method in detail.   4
   c) Explain how the consistency affects the irrigation.   4
   d) Derive relationship between duty delta and base period.   4
   e) Calculate reservoir capacity form given table below.   4

Sr. No.	Crop	Base period	Duty (Ha/cumec)	Area of Crop (Ha)
01	Wheat	118	900	3000
02	Cotton	200	1000	3200
03	Sugarcane	360	1200	2800
04	Rice	122	700	1800

   Take canal loss 18% and reservoir losses are 10%
   f) Write different cropping season in Maharashtra with their duration and base period.   4

5. Solve **any four** :   16
   a) Explain the qualities of irrigation water.   4
   b) Explain border irrigation with neat sketch.   4
   c) Explain the design of furrow irrigation.   4
   d) State specification for check basin irrigation.   4
   e) Explain contour irrigation with neat sketch.   4
   f) State the merits and demerits of micro-irrigation system.   4

6. Solve **any four** :   16
   a) Explain gross and net irrigation requirement.   4
   b) Explain hydraulic of border irrigation.   4
   c) Differentiate between border and check basin irrigation on any four points.   4
   d) Which conventional method is adopted for sugarcane and justify your answer.   4
   e) Differentiate between drip irrigation and sprinkler irrigation.   4
   f) Explain steps involved in design of drip irrigation.   4

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