

17581

11819

**3 Hours / 100 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Use of Non-programmable Electronic Pocket Calculator is permissible.  
(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. **Attempt any TEN of the following:** **20**
- Define Irrigation.
  - Define Evapotranspiration
  - Define crop period and base period.
  - State types of Irrigation.
  - List the component parts of Drip irrigation.
  - Define Duty and Delta.
  - Define Paleo Irrigation.
  - State the types of furrow irrigation.
  - State cropping seasons in India.
  - Explain the hydraulics of border irrigation.

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- k) State types of advance irrigation methods.
- l) State type of micro irrigation systems.
- m) Give the specifications check basin irrigation.

**2. Attempt any FOUR of the following: 16**

- a) How soil can be improved?
- b) Explain soil moisture curves.
- c) Derive relation between Duty and Delta.
- d) Explain what do you mean by permanent wilting percentage.
- e) State the functions of irrigation water.

**3. Attempt any FOUR of the following: 16**

- a) State factors affecting Duty.
- b) State physical properties of soil influencing irrigation.
- c) State advantages and disadvantages of irrigation.
- d) An irrigation channel runs for 125 days in a season when wheat is grown. Total depth of water is found to be 38 cm. Find duty of irrigation channel.
- e) Explain border irrigation with sketch.
- f) Explain furrow irrigation.

**4. Attempt any FOUR of the following: 16**

- a) State advantages and disadvantages of micro irrigation systems.
- b) Explain Blaney - Criddle method.
- c) Classify various irrigation methods.
- d) State factors affecting infiltration rate.
- e) Explain the sources of irrigation water.
- f) Explain volume and mass relationship of soil constituents.

**5. Attempt any FOUR of the following: 16**

- a) Explain the role of government in promotion of micro - irrigation in India.
- b) Draw the layout of Drip irrigation.
- c) Draw sketch of sprinkler irrigation system and name its various components.
- d) Explain contour irrigation.
- e) Explain necessity of irrigation.
- f) Define soil water. Give its classification.

**6. Attempt any FOUR of the following: 16**

- a) Define Gross command area, Culturable command area and Intensity of irrigation.
  - b) The duty of canal water for tobacco crop was assessed to be 1400 ha per cumec. The first watering was done on 21 November and last watering was done on 20 March. Calculate delta for the crop.
  - c) Define irrigation period and irrigation efficiencies.
  - d) State the various soil moisture constants.
  - e) How do you measure evapotranspiration by Lysimeter experiment?
  - f) Comment on irrigation status in India.
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