17581

14115

3 Hours/100 Marks

Seat No. | | | | | | | | |

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. Solve **any ten** : **20**

a) Define Irrigation.

b) Write any two classes of soil irrigability.

c) What do you mean by bulk density ?

d) What is field capacity ?

e) Define moisture equivalent.

f) What is evapotranspiration ?

g) Define crop period and base period.

h) What is irrigation frequency ?

i) State the types of furrow irrigation.

j) What are the types of border irrigation ?

MARKS

k) State the types of advance irrigation methods.

l) State the types of micro-irrigation systems.

m) List the component parts of drip irrigation.

2. Attempt **any four** : **16**

a) Explain volume and mass relationships of soil constituents.

b) State the factors affecting infiltration rate .

c) Explain soil moisture curves.

d) Derive the infiltration equation.

e) State the various soil moisture constants.

f) Explain what do you mean by permanent wilting percentage.

3. Attempt **any four** : **16**

a) Explain measurement of infiltration.

b) Derive modified Panman formula.

c) Explain capillary and non-capillary pores and soil consistency.

d) Explain Blaney-criddle method.

e) State the physical properties of soil influencing irrigation.

f) State the types of filters and degree of filtration in drip irrigation system.

MARKS

4. Attempt **any four** : **16**

a) How do you measure evapotranspiration by Lysimeter experiment ?

b) For estimating ET (crop) how will you go for selection crop coefficient.

c) State the advantages and disadvantages of irrigation.

d) State the major and medium irrigation schemes of India.

e) Derive the relationship between duty and delta.

f) The base period, intensity of irrigation and the duty of various crops under a canal are given in the table below :

Find the Reservoir capacity, if the canal has 20% losses and Reservoir has 12% losses.

Sr. No.	Name of crop	Base period (days)	Duty (ha/cumec)	Area of crop (ha)
1	Wheat	120	1800	4800
2	Sugarcane	360	800	5600
3	Cotton	200	1400	2400
4	Rice	120	900	3200
5	Vegetables	120	700	1400

5. Attempt **any four** : **16**

a) State the factors affecting duty.

b) Explain Net irrigation Requirement and Gross Irrigation requirement.

c) Explain Irrigation period and Irrigation efficiencies.

MARKS

d) State the types and component of sprinkler system.

e) How will you classify various irrigation methods ?

f) What do you mean by border irrigation ?

6. Attempt **any four** : **16**

a) What is check basin irrigation ?

b) Explain design of furrow irrigation.

c) State the specifications of furrow irrigation.

d) State hydraulic of border irrigation.

e) Explain contour irrigation in details.

f) State merits and demerits of micro-irrigation system.
