SEAT No. :

PB-252

[6270]-40

B.E. (Civil) (Insem)
IRRIGATION AND DRAINAGE
(2019 Pattern) (Semester - VIII) (401013C) (Elective - V)

Time : 1 Hour]   *[Max. Marks : 30*

Instructions to the candidates:

1) *Solve Q.1 or Q.2 and Q.3 or Q.4.*
2) *Figures to right indicate full marks.*
3) *Assume suitable data, if neeessary.*

Q1) a) Discuss benefits and disadvantages of irrigation. **[5]**

    b) 'All the waters are not fit for irrigating crops'. Discuss briefly and critically this statement. **[5]**

    c) Explain with neat sketch following water distribution techniques in the farms : **[5]**

       i) free flooding,

       ii) border flooding

OR

Q2) a) Discuss on 'Efficient water management is a challenge in India'. **[5]**

    b) Draw a neat sketch showing layout of sprinkler irrigation system and explain function of each component. **[5]**

    c) Explain application of artificial intelligence in irrigation and drainage. **[5]**

Q3) a) Estimate potential evapotranspiration for the months March and April using Blaney-Criddle formula using the following data :

Mean monthly temperature in the month of March = 27°C (= 80.6°F),

Mean monthly temperature in the month of April = 31°C (=87.8°F),

Latitude = 26°N

Crop coefficient = K = 0.75.

P.T.O.

Use Table (3B) to calculate monthly daytime hours percentage.

Table 3B: Monthly daytime hours percentages, Ph, for use in Blaney-Criddle formula : **[7]**

North latitude (deg)	March	April
20	8.41	8.52
25	8.39	8.61
30	8.38	8.72

b) Explain the following terms : **[6]**

i) Field capacity,

ii) Permanent wilting point,

iii) Available water

c) Define 'Maximum Allowable Deficiency (MAD)'. **[2]**

OR

Q4) a) Explain the following soil-water terms : **[6]**

i) Gravitational water,

ii) Capillary water,

iii) Hygroscopic water

b) A crop has effective root zone depth of 1000 mm and monthly (30 days) crop evapotranspiration of 220 mm. The effective rainfall during the 30 days period is 15 mm. The field capacity and permissible soil moisture depletion (volume basis) are 30% and 16%, respectively. Determine the irrigation interval in days for the crop. **[6]**

c) Enlist data required for the computation of reference evapotranspiration along with their unit as per Penman method. **[3]**

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