Total No. of Questions : 4]

SEAT No. :

PD255

[Total No. of Pages : 2

[6411]-30

B.E. (Civil) (Insem)

IRRIGATION AND DRAINAGE

(2019 Pattern) (Semester-VIII) (Elective-V) (401013 C)

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

Instructions to the candidates:

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

Q1) a) What is mean by 'Border flooding', and how does it differ from 'Check flooding' and 'Free flooding'? **[5]**

b) Discuss critically the quality standards required for irrigation water. **[5]**

c) Explain canal distribution network (CDN) with neat sketch. **[5]**

OR

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

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

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

Q3) a) Estimate the potential evapotranspiration (PET) of an area for the month October and November in which sugarcane is grown. The latitude of the area is 18ºN. The average value of crop coefficient K = 0.95 in Blaney-Criddle formula. The mean monthly temperature for the month October and November is 75ºF (=23.89ºC) and 72ºF (=22.22ºC). Use Table (3a) to calculate monthly daytime hours percentage. **[7]**

Table 3a: Monthly daytime hours percentages, Ph, for use in Blaney-Criddle formula

North latitude (deg)	Oct.	Nov.
0	8.50	8.22
10	8.34	7.91
15	8.26	7.75
20	8.18	7.58

P.T.O.

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

i) Field capacity

ii) Permanent wilting point

iii) Available water

c) Define - 'reference surface' as per FAO Penman-Monteith method. **[2]**

OR

Q4) a) Explain with neat sketch how soil texture and structure affect water movement in soil. **[6]**

b) A crop has effective root zone depth of 1200 mm and monthly (30 days) crop evapotranspiration of 260 mm. The effective rainfall during the 30 days period is 20mm. The field capacity and permissible soil moisture depletion (volume basis) are 16% and 8% 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 FAO Penman-Monteith method. **[3]**