B.Tech Even Semester Examination, May, 2025

Agricultural Engineering

(6th Semester)

Course No: AE-604

(Irrigation & Drainage Engineering)

Full Marks: 50

Pass Marks: 25

Time: 2 hours

Note:

1. Attempt any five questions .
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. Define: 2x5=10

   i) Lysimeter ii) Specific Yield

   iii) Base Period iv) Porosity

   v) Volumetric water content

2. a) Classify briefly the different types of irrigation. 6

   b) Briefly explain the need for irrigation? 4

3. a) What are the factors affecting Consumptive Use of Water? 4

   b) Enumerate the different irrigation efficiencies. 6

4. A double acting reciprocating pump has a piston of 25cm diameter and a piston rod of 5cm

diameter which is on one side of the piston only. The length of the piston stroke is 35 cm and the speed of the crank moving the piston is 60cm rpm. The suction and d is charge heads are 4.5m and 18m, respectively. Determine the discharge capacity of the pump in litres per minute and the H.P. required to operate the pump. 7+3

5. a) Give some measures for improving duty of water. 6

   b) If wheat requires about 7.5 cm of water after every 28 days, and the base period for wheat is 140 days, find out the value of delta for wheat. 4

6. a) Derive the relationship between Duty & Delta. 5

   b) If duty is 432 ha/m^3 and Base Period is 150 days. Calculate the base period. 3

   c) What is the general rotation of crop for better irrigation and water availability? 2

7. a). Write briefly about Components of Fertigation 3

   b) Enlist the different factors affecting duty. 7

8. a) Write about the merits and demerits of well irrigation. 5

   b) Draw a layout of drip irrigation system. Enlist its different components 5

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