



- Answer all the following questions
- Illustrate your answers with sketches when necessary

- No. of questions : 4 (2 Pages)
- Total Mark: 20 Marks

..... الاسم: ..... الرقم الأكاديمي: .....

Question (1)	Question (2)	Question (3)	Question (4)	Total Marks

**Question (1)**

**(5\*1 = 5 Marks)**

**A-** Define: Irrigation – Drainage?

**B-**In a given year, a catchment with an area of 2000 km<sup>2</sup> received 1.2 m of precipitation. The average rate of flow measured in a river draining the catchment was 25 m<sup>3</sup>/s.

1. Determine the total river runoff occurred in the year (in m<sup>3</sup>)?
2. Find the runoff coefficient?
3. How much water is lost due to evaporation, transpiration, and infiltration (in m)?

**Question (2)**

**(5\*1 = 5 Marks)**

**A-** Each canal must have ..... at the beginning, and ..... at the end.

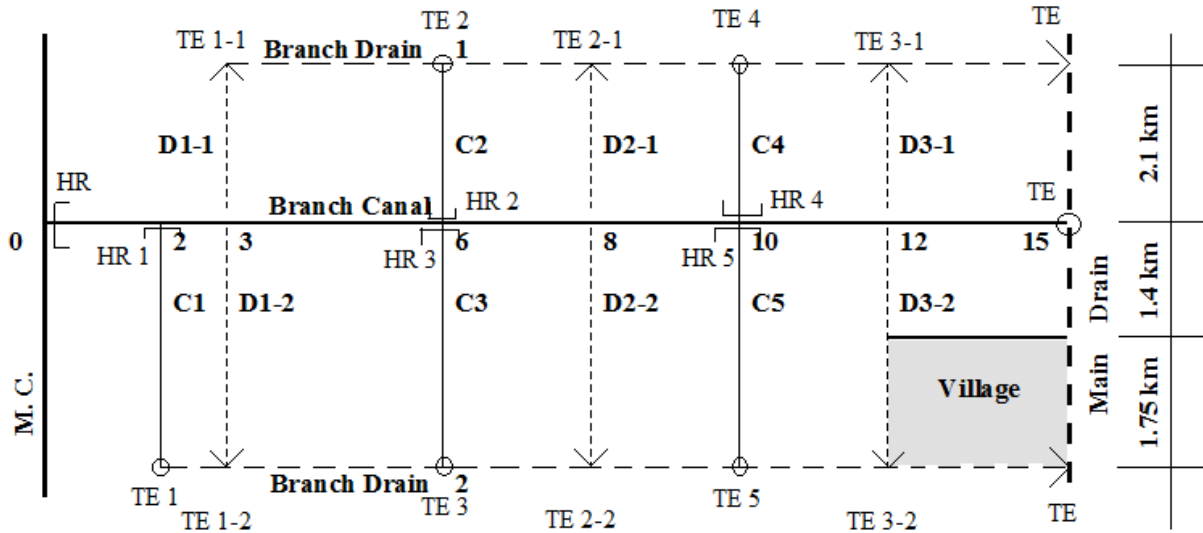
**B-**An area has 1.2 t/m<sup>3</sup> specific weight, 42 % field capacity and 18 % wilting point. This area is cultivated by cotton with field irrigation requirements of 70 m<sup>3</sup>/feddan/day when its effective root depth is 100 cm.

1. Calculate the consumptive use? ( $C_u = 4200 * R_{de} * (\gamma_s / \gamma_w) * RAW$ )
2. Find the maximum period between irrigation processes? ( $P_{max} = C_u / F_r$ )
3. If the on-interval is 7 days, determine the field water duty?

**Question (3)**

**(4\*1 = 4 Marks)**

The following figure shows a planning of an area in Upper Egypt that has  $FWD=50 \text{ m}^3/\text{Fed}/\text{day}$ .



	Area Served, Feddan	The Discharge, $\text{m}^3/\text{s}$
The distributary canal $C_1$		
The minor drain $D_{1-1}$		

**Question (4)**

**(6 Marks)**

Plan the irrigation and drainage networks required to serve this area?

