





- 6 a. Give the classification of Indian soils. (06 Marks)  
 b. Define Irrigation efficiencies. (06 Marks)  
 c. What are the different methods of maintaining soil fertility? (08 Marks)

- 7 a. Define Duty. What are the factors affecting duty of water? Explain. (10 Marks)  
 b. Table gives the necessary data about the crop, their duty and area under each crop, commanded by a canal taking off from a storage tank. Taking time factor for the canal  $13/20$ , calculate the discharge required at the head to the canal. If the capacity factor is 0.8, determine the design discharge. (10 Marks)

Crop	Base period (days)	Area (ha)	Duty (ha/cumec)
Sugarcane	320	850	580
Overlap for sugarcane in summer	90	120	580
Wheat (Rabi)	120	600	1600
Bajri (Monsoon)	120	500	2000
Veg (Hot weather)	120	360	600

- 8 a. What are the consideration for alignment of canals? (10 Marks)  
 b. Design the canal for the discharge of 30 cumec with silt factor 1.0. Side slope – 0.5H : 1V. (10 Marks)

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