



WEIRS

QUESTIONS (1)

A Fayoum type weir is required to be constructed at a drop in water surface of main lined canal according to the following data:

	U.S weir	D.S weir
High water level	21.50	20.5
Bed level	19.10	17.80
Bed width	7.0 m	7.0 m

Canal side slopes = 3:2

Canal discharge = 12.0 m³/sec

Bligh value = 15

It is required to:-

- 1-Make a complete design for the weir together with a foot bridge 2.0 m width.
- 2-Draw dimensioned views for the structure showing a plan half earth removed and a longitudinal section.

QUESTIONS (2)

A standing wave weir is built in the downstream of a head regulator for measuring the discharge with minimum drop in water surface according to the following data:

Max. discharge = 14.50 m³/sec

Bed width of canal = 7m; side slope 3:2

Bed level U.S. (10.00) and Berm level = (13.00)

U.S. water level (12.50)

Discharge equation of weir: $q = 2.05 H^{1.6}$ m³/unit length.

IT IS REQUIRED TO :

- 1) Design the weir
- 2) Design the floor assuming that $C_B = 15$
- 3) Draw a fully dimensioned plan half earth removed of the weir; show the required protection against piping
- 4) Draw a fully dimensioned longitudinal section.

QUESTIONS (3)

As shown in figure the main canal (A) is divided into canal (B) and (C). Two standing wave weirs (S.W.W.) are to be constructed according to the following data:-

- At H.W.L $Q_A = 120 \text{ m}^3/\text{sec}$, $Q_B = 3 Q_C$
- At L.W.L $Q_A = 45 \text{ m}^3/\text{sec}$, $Q_B = 2 Q_C$
- H.W.L. in canal (B) D.S. the weir = (15.00) m
- Submerged ratio during flood in canal (B) = 0.60
- $H_f - H_s (A) = 0.65 \text{ m}$
- Discharge equation for the two weirs $Q = 2.0 B H^{1.5}$

IT IS REQUIRED TO :

- 1) Fix the crest level and the width for the two weirs
- 2) Determine the H.W.L. & L.W.L. in the main canal (A)
- 3) Design the cross-section for one of the two weirs.

