

Code: R7420109

R7

B.Tech IV Year II Semester (R07) Advanced Supplementary Examinations, June 2012

DESIGN & DRAWING OF HYDRAULIC STRUCTURES

(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any ONE question

- 1 Design a sluice taking off from a tank irrigating 200 hectares at 1000 duty. The tank bund through which the sluice is taking off has a top width of 2 meters with 2:1 side slopes. The top level of bank is +40.00 and the ground level at site is +34.50. Good hard soil for foundation is available at +33.50.
The sill of the sluice at off-take is +34.00. The maximum water level in tank is 38.00. The full tank level +37.00. Average low water level of tank is +35.00. The details of the channel below the sluice are as follows.
Bed level +34.00, F.S.L +34.50, Bed width 1.25 m, Side slopes $1\frac{1}{2}$ to 1 with top of bank at +35.50.
- 2 Design a trapezoidal notch fall for the following data:
Particulars of the canal above fall are
Full supply discharge = 4 cubic meters/second.
Bed width = 6.00 m.
Bed level = +10.00
Full supply depth = 1.5 m.
F.S.L = +11.50.
Top of bank 2.00 m wide at level +12.50.
Half supply depth = 1.00 m.
Particulars of the canal below fall are
Full supply discharge = 4 m³/s.
Bed width = 6 m.
Bed level = +8.00
Full supply depth = 1.50 m.
F.S.L = +9.50
Top of bank 2.00 m wide of level +10.50. The ground level of the site of work is +10.50.
Good soil is available for foundations at +8.50.
