DEPARTMENT OF CIVIL ENGINEERIG, IIT DELHI

CEL 381

Design of Hydraulic Structures

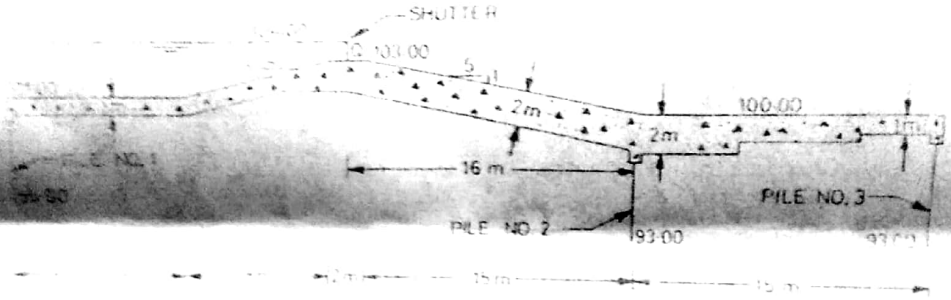
Time: 5.30PM-6.30PM **Date: 26-03-2018** **Room No. LH114** **Marks: 20**

Assume any Missing Data **Minor I I** **Submit on Time**

DO NOT WRITE ANYTING IN QUESTION PAPER

1. "Rate of change of velocity per unit length of the transition remains constant throughout the section" Apply this principle to achieve important expression for the hyperbolic transitions. **[Marks = 3]**

2. Check against uplift pressure and do the correction for mutual interference using Khosla's thought. Take G =2.24 and G_E=1/7. **[Marks = 7]**



3. Design Sharda type fall taking the following information:

Full supply discharge at u/s and d/s =10 Cumec
Drop = 1m
Full supply level at u/s and d/s =101.50m /100.50 m
Full supply depth at u/s and d/s = 1.50 m/1.50m
Bed level at u/s and d/s = 100m/99m
Bed with at u/s and d/s = 8.0m/8.0m
Soil type = Good loam
Assume Bligh's coeff. =7. **[Marks=4]**
Show in Figure all components of Sharda fall.

5. Short Notes
(a) Montague Fall
(b) Roughening Devices **[Marks=3]**

6. Differentiate in Tabular format (one point contains 0.5 Marks)
(a) Syphon Aqueduct and Super Passage
(b) Head regulator and Cross Regulator **[Marks=3]**