Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.TECH IV Year II Semester Regular & Supplementary Examinations July-2021
DESIGN & DRAWING OF IRRIGATION STRUCTURES
(Civil Engineering)

Time: 3 hours

Max. Marks: 60

Answer any **ONE** question

1 Design a surplus weir for a minor tank forming a group of tanks with the following L4 **60M**
available information:

Combined catchment area = 25.89 km^2
Intercepted catchment area = 20.71 km^2
Top width of bund = 2 m
Side slopes of the bund = 2:1 on both sides
Top level of bund = + 14.50
Maximum water level = + 12.75
Full tank level = + 12.00
General ground level at the site = + 11.00
Ground level slopes off to a level = + 10.00 in about 6 m distance
The foundations are of hard grovel = + 9.50
Saturation gradient = 5:1 with 1 m clear cover
Provisions are to be made to store water M.W.L in times of necessity.
Draw the following:
(i) Half plan at top and half plan at foundation level.
(ii) Section across weir. Assume any other suitable data.

OR

2 Design a tank sluice with tower head for the data given below: L4 **60M**

Ayacut to be irrigated = 200 ha
Duty = 1000 ha/cumec
Top width of tank bund = 2 m with 2:1 side slope
The top level of tank = + 40.00
The ground level at the site = + 34.50
Hard soil for foundation = + 33.50
The sill of the sluice at off take = + 34.00
The maximum water level in tank = +38.00
Full tank level = + 37.00
Average low water level in the tank = + 35.00
The channel bed level = + 34.00
Bed width of the channel = 1.25 m
Full supply level = + 34.50
Side slopes of the channel = 1.5:1 with top of tank at + 35.50
Draw the following:
(i) Half plan at top and longitudinal section of the sluice barrel. Assume any
other suitable data

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