

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

**B.Tech IV Year I Semester Regular & Supplementary Examinations December-2024
DESIGN & DRAWING OF IRRIGATION STRUCTURES**

(Civil Engineering)

Time: 3 Hours

Max. Marks: 60

Answer any ONE of the following two questions

- 1 Design a surplus weir for a minor tank forming a group of tanks with the following data: Combined Catchment area : 25.89 Km² CO2 L6 60M
 Intercepted Catchment area : 20.71 Km²
 Top width of the bund : 2 m
 Side slopes of the bund : 2:1 on both sides
 Top level of bund : +14.50
 Maximum Water level (M.W.L) : +12.75
 Full Tank Level : +12.00
 General ground level at the site : +11.00
 General level slopes off to a level : +10.00 in about 6m distance
 The foundation are of hand gravel : +9.50
 Saturation gradient : 4:1 with 1 m clear cover
 Provision is to be made to store water up to MWL in times of necessity.
Draw the Following:
 i) Half plan at top and half plan at foundation level
 ii) Half longitudinal section and half longitudinal elevation

OR

- 2 Design a syphon aqueduct Type – III for the following data: CO5 L6 60M
Canal :
 Discharge : 35 m³ /s
 Bed width : 20.00m
 Bed level : +40.00
 Full supply level : +42.00
 Ultimate bed level : +39.75
 Ultimate full supply level : +42.50
 Average velocity in the canal : 0.83m/s
 Left bank top width : 5.00
 Right bank top width : 2.00
 Canal side slopes both inside and outside : 2:1
 Top of canal bank : +43.50
Drain:
 Catchment area : 8.0 km²
 Maximum computed discharge : 60 m³ /s
 Maximum flood level of the drain at the side crossing: +39.75 (observed)
 Average bed level of the drain at the site crossing : +38.00
 Hard soil is available at : +37.00
Draw the Following:
 i) Half plan at top & half plan at foundation level
 ii) Longitudinal section through the barrel

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