**D 11924** (Pages : 2)

Name.....

Reg. No.....

**SEVENTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE EXAMINATION, NOVEMBER 2016**

CE/PTCE 09 702—DESIGN OF HYDRAULIC STRUCTURES

Time : Three Hours Maximum : 70 Marks

## Part A

*Answer* **all** *questions.*

1. What are low and high dams ?
2. What are canal outlets ?
3. Why siphon well drops are necessary in canals ?
4. What are cross drainage works ?
5. What is arch dams ?

(5 × 2 = 10 marks)

## Part B

*Answer any* **four** *questions.*

6. What are the components of tank sluice with tower head ? Where such type of structures established ?
7. Draw elementary profile of dams and describe the salient features.
8. What are diversion head works ? Describe the functions of each.
9. What are different types of aqueduct ? How they are useful ?
10. What are spillways and their types ?

(4 × 5 = 20 marks)

**Turn over**

## Part C

11. Design a tank sluice with tower head for the following hydraulic particulars :

| | | |
|---|---|---|
| Ayacut | : | 68.6 hectares |
| Duty | : | 723 hect / cumec |
| Top width of bund | : | 1.80 m |
| Front slope | : | 1 $Y_2$ : 1 |
| Rear slope | : | +2 : 1 |
| Tank bund level | : | + 20.20 m |
| Maximum water level | : | + 18.90 m |
| Full tank level | : | + 18.30 m |
| Highest field level | : | + 14.60 m |
| Lowest field level | : | + 12.20 m |

Assume any other relevant data : (20 marks)

Draw a suitable scale for the following views :

(i) Longitudinal section. (10 marks)

(ii) Half plan at top and half plan at foundation level. (10 marks)

*Or*

12. Design a notch type canal drop for a fall of 2.0 m with the following details :

| | | |
|---|---|---|
| Full supply discharge | : | 5.4 $m^3$ / Sec |
| Bed width (U/s) | : | 5.00 m |
| Bed width (D/s) | : | 5.00 m |
| Full supply level (U/s) | : | + 9.20 m |
| Surface fall (both U/s and D/s) | : | 1 in 4000 |

Draw the following view to a suitable scale : (20 marks)

Plan half at top and half at foundation. (10 marks)

Longitudinal section. (10 marks)