

3523

**B.Tech (Civil), 7th Semester (G-Scheme)**  
**Examination, November-2023**  
**DESIGN OF HYDRAULIC STRUCTURE**  
**Paper -PCC-CE-405-G**

*Time allowed : 3 hours]*

*[Maximum marks : 75*

*Note : Question no. 1 is compulsory. Attempt total five questions selecting one question from each unit. All questions carry equal marks.*

1. Define the following : 6×2.5=15
- (a) Mending Type
  - (b) Dicken's formula for calculating maximum discharge
  - (c) List the forces acting in a gravity dam.
  - (d) Flood routing method
  - (e) Explain Ogee type of spillway.
  - (f) What are the functions of gallery in a gravity dam?

**Unit-I**

2. What are the objectives of river training work? Describe its classification. 15

3523-P-3-Q-9(23)

[P.T.O.]

3. Design various method adopted for design of guide bank. 15

**Unit-II**

4. (a) Define cross drainage works. Describe its types. 7.5
- (b) Explain the Khosla's theory of independent variables. 7.5
5. Design a suitable cross drainage work given the following data at the site of the crossing of two streams of water
- Irrigation channel
- Full supply discharge - 350 cumecs
- Full supply level - 202.5m
- Canal bed level - 197.5m
- Full supply depth - 4.7m
- Side slop - 0.5H: 1V 15

**Unit-III**

6. (a) What is spillway? Discuss factors affecting its capacity. 7.5
- (b) What is a Spillway? Explain Ogee type of spillway. 7.5

7. (a) Define different types of fall with suitable diagram. 7.5
- (b) Explain stepwise procedure for designing the Sarda types fall. 7.5

#### Unit-IV

8. (a) Define different types of dam. 7.5
- (b) Explain various modes of failure of gravity dam. 7.5
9. (a) Describe various problems associated in dam construction. 7.5
- (b) Explain thin cylinder method of design of Arch dam. 7.5