JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST - 2 EXAMINATION - 2023

B.Tech. - VIII Semester (Civil)

COURSE CODE (CREDITS): 18B1WCE736 MAX. MARKS: 25

COURSE NAME: Dam and Reservoir Design

COURSE INSTRUCTORS: Saurabh Rawat MAX. TIME: 1 Hour 30 Minutes

---

Note: *(a)All questions are compulsory.*

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

---

Q1. With reference to the combination of forces for design, explain the 'Normal Load Combination' and 'Extreme Load Combination' for the Reservoir full case. (*CO2, CO3*) **[2+3 = 5]**

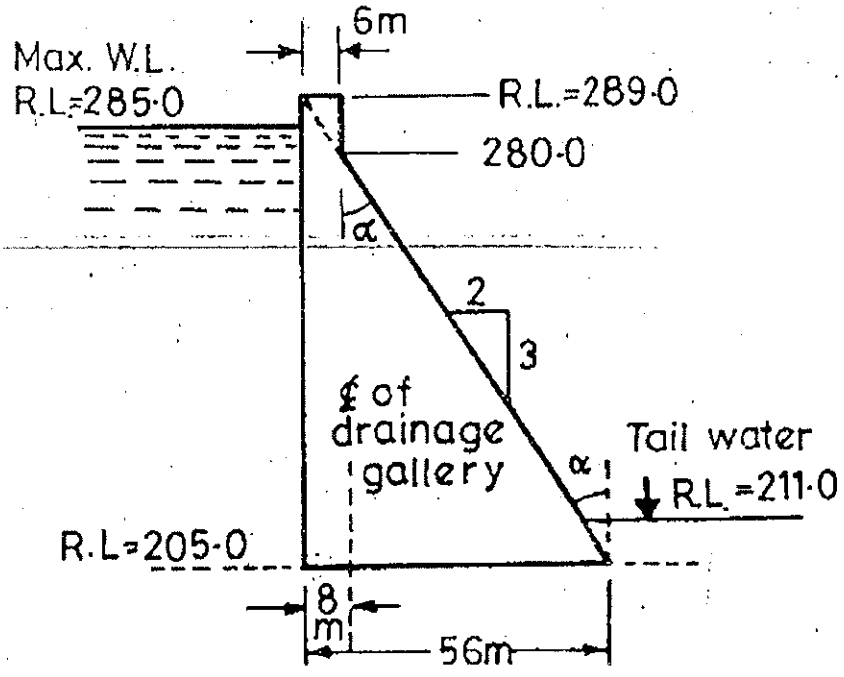
Q2. Figure below shows the section of gravity dam (non – overflow portion) built of concrete. Calculate (neglecting earthquake effects):

a). The maximum vertical stress at the heel and toe of the dam

b). The major principal stress at the toe of the dam

c). The intensity of shear stress on horizontal plane near the toe.

Assume weight of concrete = 23.5 kN/m^3; unit length of dam and allowable stress in concrete may be taken as 2500 kN/m^2. (*CO3*) **[3+3+2 = 8]**



Q3. With the help of diagrams, describe the different modes of failure and criteria for structural stability of Gravity Dam. *(CO3)* **[3+3 = 6]**

Q4. **(a)** Differentiate between a 'low gravity dam' and a 'high gravity dam'

(b) How does the practical profile of a low gravity dam differs from that of the theoretical one, and why? *(CO3, CO4)* **[3+3 = 6]**