L. D. COLLEGE OF ENGINEERING, AHMEDABAD (GTU)

7th Semester Civil Engineering - PDDC 2013 Batch

Subject Code & Name : X70601 - Design of Hydraulic Structures

Assignment - 2 (Concrete Dam Engineering)

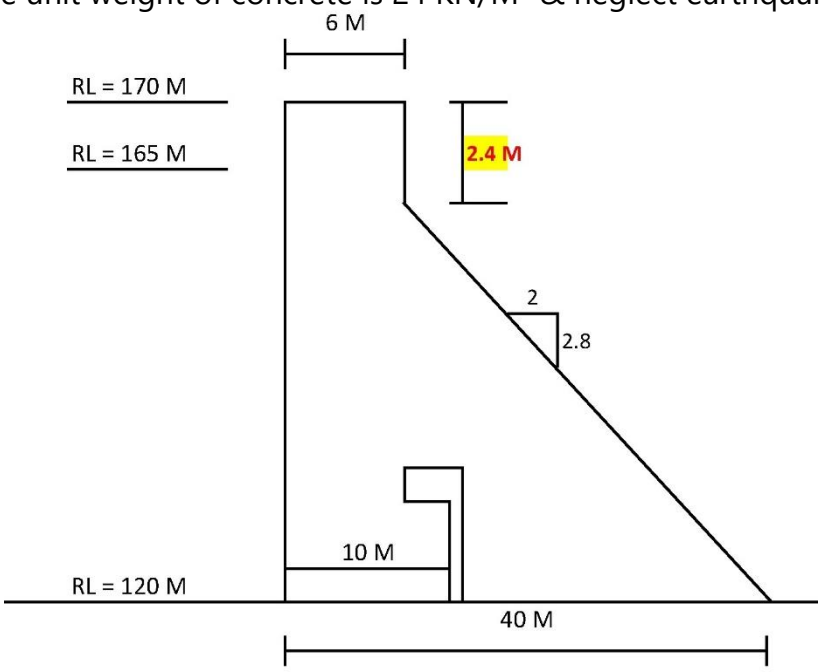
Date : 20-07-2016

Theory:

1. Describe concrete gravity dam. Sketch typical cross section of concrete gravity dam.
2. Enlist various forces acting on gravity dam also describe each in dam.
3. Describe various modes of failure of concrete gravity dam.
4. Describe the expression for principal stress & shear stress at head & toe of dam.
5. Describe the analytical method of stability analysis of concrete gravity dam.
6. Describe graphical method of stability analysis of dam.
7. Describe the elementary profile of gravity dam.
8. Describe the expression of limiting height of low & high gravity dam.
9. Discuss the practical profile of gravity dam.
10. Explain joint in concrete gravity dam.
11. Write short note of
    a) Drainage Gallery
    b) Shear Key
    c) Roller compacted concrete gravity dam
    d) Thermal crakes

Example:

1. Figure shows the section of concrete gravity dam, calculate the (a) Maximum vertical stress at the heel and toe (b) Principle stress at heel and toe (c) Shear stress at heel and toe, (assume unit weight of concrete is 24 KN/M^3 & neglect earthquake forces).



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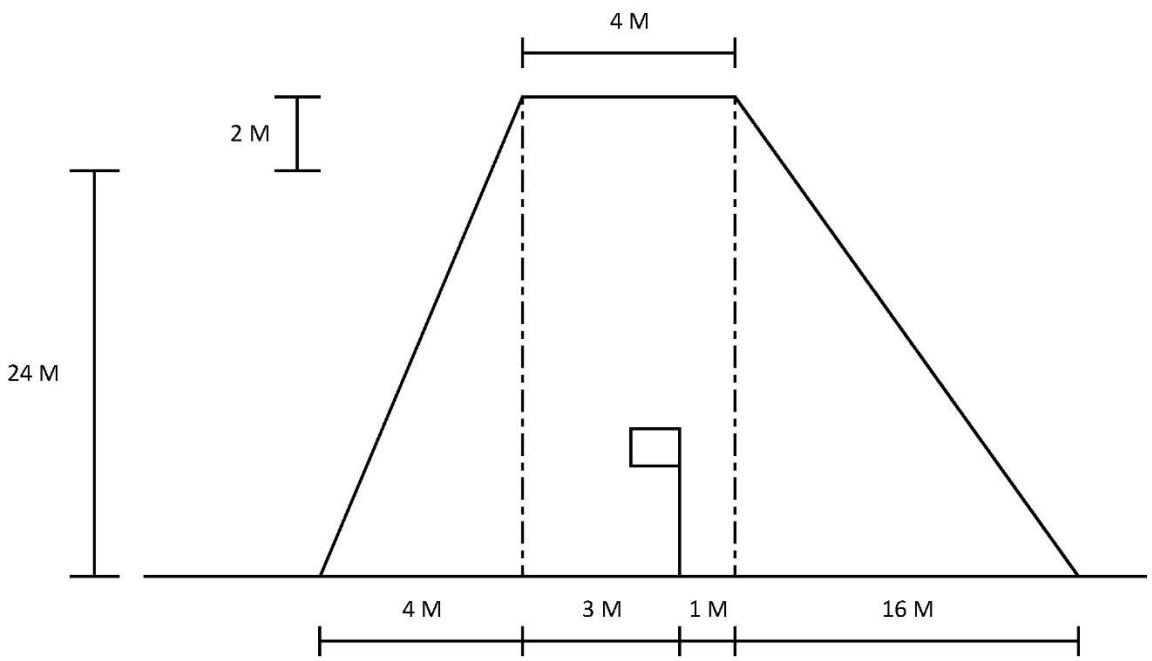
2. Check the stability of concrete gravity dam section shows in figure considering all forces.
   - earthquake forces are equal to 0.1 g for horizontal forces & 0.05 g for vertical forces
   - assume unit weight of concrete is 24 KN/M^3



3. Design the practice profile of gravity dam of masonry made for given data
   - R.L. of base of dam = 540 M
   - R.L. of HFL of reservoir = 570 M
   - Specific Gravity of masonry = 2.4
   - Safe compressive stress of masonry = 1200 KN/M^2

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