JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-3 EXAMINATION- 2025
B.Tech VII Semester (CE)

COURSE CODE (CREDITS): 18B1WCE736 (3) MAX. MARKS: 35

COURSE NAME: DAM AND RESERVOIR DESIGN

COURSE INSTRUCTOR: DR. NIRAJ SINGH PARIHAR MAX. TIME: 2 Hours

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

(b) Use of calculator is permitted.

(c) The candidate is allowed to make suitable numeric assumptions wherever required for solving the problem.

Q.No	Question	CO	Marks
Q1	The runoff data for a river during a lean year are given below. Answer the questions to the common data showing proper calculations and explanations. Month: Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec River inflow (Mm^3): 140 | 27 | 35 | 26 | 16 | 48 | 212 | 180 | 116 | 92 | 67 | 37 i. What is the maximum uniform demand that can be met during the entire year? ii. What is the storage capacity required to meet this demand?	CO1,3	**7**
Q2	A masonry dam 6 m high is 1.5 m wide at the top and 4.5 m at the base with vertical water face, no drainage gallery and water level up to the top of the dam. Neglecting the seismic and tail water effects analyze the dam for its stability and find the major stresses. Assume suitable data wherever required. Show proper calculations with pressure diagrams.	CO4,5	**8**
Q3	Briefly explain the modes of failure in an earthen dam with the help of suitable figures.	CO5	**8**
Q4	A homogenous earthen dam has a total height of embankment as 14m and water depth as 12 m. The u/s and d/s slopes are 2.5:1 and 2:1 respectively and the top width is 2 m. It is provided with a d/s filter of 28 m length. The coefficient of permeability is $8x10^{-5}$ m/sec. Determine the phreatic line and the	CO4	**7**

	discharge through the dam.		
Q5	Write a short note on 'Foundation grouting methods' below a masonry dam.	CO2,5	**5**