Seat No.:		Q. Paper Code: FTC-A-016	SET	A

Fabtech Technical Campus, College of Engineering & Research, Sangola

(An Autonomous Institute)

Geotechnical Engineering

Academic Year: -2025-26, Semester-I

Earth & Rock fill Dams (25PCE11271)

Regular End Semester Examination Winter 2025-26 [Dec./Jan]

Class:	F. Y. M. Tech.	**Day & Date:**	Wednesday, 07/01/2026
Duration:	03 Hrs.	**Max. Marks:**	60 Marks
Time:	11:00 AM TO 02:00 PM		

Instructions:

1) All Questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagram wherever necessary.
4) Make suitable assumptions if necessary and state it clearly.
5) Use of non-programmable calculator is allowed.

Q. No.	Questions	Marks	CO	BL
Q. 1	**Attempt any two of the following**	**12**		
1	Enlist Classification Based on Impervious Element and explain any one.	**6**	1	2
2	Discuss the geological conditions that are important for the selection of a dam site.	**6**	1	4
3	What topographical features are ideal for the construction of an earth or rock-fill dam? Why?	**6**	1	2
Q. 2	**Attempt any two of the following**	**12**		
1	Enlist Major Causes and Mechanisms of Failure and explain any two.	**6**	2	5
2	Describe the mechanisms of wave erosion on the upstream face of an earth dam and the protective measures used.	**6**	2	4
3	Define Piping and types of piping.	**6**	2	5
Q. 3	**Attempt any two of the following**	**12**		
1	Explain components of an earth dam and their roles in ensuring the stability and functionality of the structure.	**6**	3	3
2	Describe the importance of site selection in the design of an earth dam. What factors must be considered when choosing a suitable location?	**6**	3	4
3	What are the main functions of the core (impervious zone) in an earth dam, and what materials are typically used to construct it?	**6**	3	2
Q. 4	**Attempt any two of the following**	**12**		

1	Explain seepage flow through soils. State the assumptions made in seepage analysis and discuss the engineering importance of seepage.	**6**	4	4
2	State and explain Darcy's law. Derive the expression for discharge through a soil mass and discuss the validity of Darcy's law.	**6**	4	3
3	Define hydraulic gradient. Explain its significance in seepage problems.	**6**	4	4
Q. 5	**Attempt any two of the following**	**12**		
1	Define slope stability and explain the difference between driving and resisting forces.	**6**	5	3
2	Differentiate between rotational, translational, wedge, and flow failures in slopes. Give one example for each type.	**6**	5	5
3	List at least four common causes of slope failure and briefly explain how each contributes to instability.	**6**	5	3