VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD
Accredited by NAAC with A++ Grade
B.E. (Civil Engg.) VII-Semester Main & Backlog Examinations, Dec.-23/Jan.-24
Water Resource Engineering

Time: **3 hours**   Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10× 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	What is infiltration index? Explain	2	3	1	1
2.	List out various advantages and disadvantages of non-recording type rain-gauge	2	1	1	1
3.	Develop a relation between delta, duty and base period	2	3	2	2
4.	Discuss the salient features of Kennedy's theory for the design of un-lined channels.	2	4	2	2
5.	What are the details of investigations to be carried out for economical design and construction of headwork's.	2	1	3	2
6.	What considerations are important for deciding the type of cross-drainage work?	2	1	3	2
7.	List out various factors considered for selection of site for a reservoir planning?	2	1	4	2
8.	Classify spillways. Give the salient features of free over fall spillway	2	1	4	2
9.	Analyze the advantages and disadvantages of earthen dams.	2	4	5	1
10.	How can a gravity dam fail?	2	1	5	2
	Part-B (5 × 8 = 40 Marks)				
11. a)	How do you estimate mean rainfall over a catchment? Explain	4	4	1	2
b)	What is unit hydrograph? How do you construct it? Differentiate between unit hydrograph and S-hydrograph?	4	2	1	2
12. a)	Define and explain consumptive use of water. List out various factors which affect it.	4	2	2	2
b)	Design a channel section by Kennedy's theory with the given following data B/D ratio =5:7 S=1 in 5000 N=0.0225	4	4	2	3

			M	L	CO	PO
13.	a)	Differentiate between Bligh's creep theory and Khosla's theory? Discuss them in detail.	4	4	3	2
	b)	What are the various functions of cross regulator and head regulator? Explain them.	4	2	3	1
14.	a)	How do you estimate the life of a reservoir? Explain in detail.	4	2	4	1
	b)	Find the discharge passing over an uncontrolled Ogee crested chute spillway given: (i) Height of spillway crest above the u/s approach channel = 9 m (ii) Width of approach channel = 225 m (iii) Depth of water over the spillway = 6.5 m (iv) Effective length of spillway = 250 m	4	3	4	3
15.	a)	What are various seepage control measures adopted in earth dams? Explain.	4	2	5	1
	b)	Define elementary profile of a gravity dam. Derive relations for different stresses.	4	2	5	1
16.	a)	Explain various factors affecting runoff in detail?	4	2	1	1
	b)	An outlet has a gross commanded area of 500 ha, out of which only 80% is culturable. The intensity of irrigation for Rabi season is 65% and for Kharif season 30%. Assuming losses in conveyance system as 6% of the outlet discharge, determine the discharge at the head of the irrigation channel. Take outlet discharge for Rabi season as 1500 ha/m³/s and for Kharif season as 800 ha/m³/s	4	4	2	2
17.		Answer any *two* of the following:				
	a)	Classify various types of falls along with neat sketches. Give their advantages and disadvantages	4	4	3	1
	b)	Write a short note on Energy dissipators?	4	1	4	1
	c)	List out the basic requirements for design of earth dams. Explain homogeneous and zoned embankment dams?	4	1	5	1

M : Marks;   L: Bloom's Taxonomy Level;   CO; Course Outcome;   PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	25%
ii)	Blooms Taxonomy Level – 2	35%
iii)	Blooms Taxonomy Level – 3 & 4	40%

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