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Code No. : 17145 S N/O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (Civil Engg.) VII-Semester Supplementary Examinations, May/June-2023

Water Resources 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 are different forms of precipitation? Mention them.	2	1	1	1
2.	What is the significance of S-Hydrograph?	2	1	1	1
3.	What is meant by base period and consumptive use of water?	2	1	2	1
4.	Find the delta of a crop having duty as 432 hectares/cumec on the field and 45 days as its base period?	2	3	2	2
5.	What is the difference between weir and Barrage?	2	2	3	1
6.	What are cross drainage works? Mention their types.	2	1	3	1
7.	Draw a neat sketch of slotted bucket type energy dissipator?	2	1	4	1
8.	Mention the different types of spillway gates?	2	1	4	1
9.	Differentiate between earthen and gravity dams?	2	1	5	1
10.	List out various types of construction methods for earthen dams?	2	1	5	1
Part-B (5 × 8 = 40 Marks)					
11. a)	What is runoff? What are the various factors that affect runoff from a catchment area? Discuss	4	2	1	1
b)	A peak of a flood hydrograph due to a six hour storm is 480 m ³ /s. The average depth of rainfall is 9cms. Assume an infiltration loss of 0.25cm/hr and a constant base flow of 15m ³ /s. Estimate the peak discharge of 6 hour unit hydrograph for this catchment area	4	3	1	2
12. a)	Explain neatly Kennedy's silt theory and compare its merits and demerits over the Lacy's silt theory?	4	2	2	1
b)	Design a regime channel for a discharge of 50 cumecs with a silt factor of 1.0 by Lacy's theory?	4	3	2	2

13. a)	What is Bligh's creep theory? How does it differ from Khosla's theory? Explain	4	2	3	1
b)	Explain the role of weir or barrage in a diversion head works? What are the various causes of failure of weirs?	4	2	3	1
14. a)	Discuss various methods used for energy dissipation below spillways?	4	2	4	1
b)	Explain various methods of reservoir sediment control?	4	3	4	1
15. a)	What do you understand by gravity dam? Explain various forces that act on a gravity dam?	4	2	5	1
b)	Explain with the help of a neat sketch, the components of a zoned embankment dam with their functions?	4	2	5	1
16. a)	Distinguish between a hydrograph and unit Hydrograph and discuss the basic assumptions involved in unit hydrograph concept?	4	3	1	1
b)	A lined irrigation canal has bed width 10m, depth 3m, side slope 1:1. If the maximum permissible velocity for the type of lining used is 1.5m/s, find maximum permissible bed slope at which the canal can be laid? Assume coefficient of Manning's roughness as $n=0.013$.	4	4	2	2
17.	Answer any <i>two</i> of the following:				
a)	Discuss briefly the functions of cross regulator and head regulator?	4	3	3	1
b)	What are the factors on which the selection of the site of a reservoir depend?	4	3	4	1
c)	Write a short note on seepage control measures for dams.	4	3	5	1

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

i)	Blooms Taxonomy Level - 1	20%
ii)	Blooms Taxonomy Level - 2	37.5%
iii)	Blooms Taxonomy Level - 3 & 4	42.5%
