

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025*****Fourth Semester*****Agricultural Engineering****(Common to Seventh Semester Civil Engineering)****AI3404 - Hydrology and Water Resources Engineering*****Regulations - 2021******Duration : 3 Hrs******Maximum : 100 Marks******PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

Q.No	Questions	BLT	CO	Marks
1.	Differentiate Drizzle and Glaze.	L2	1	2
2.	What is ϕ -index and what is its significance?	L2	1	2
3.	Define catchment.	L1	2	2
4.	What is a Unit Hydrograph and what are its limitations?	L2	2	2
5.	What is NDVI and write down the formula to estimate NDVI?	L3	3	2
6.	Differentiate Meteorological and Agricultural Drought.	L2	3	2
7.	Define trap efficiency.	L2	4	2
8.	Differentiate useful and economic life of a reservoir.	L2	4	2
9.	Differentiate aquiclude and aquitard.	L2	5	2
10.	Define specific yield.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Explain the parts of a float type of rain gauge with a neat sketch.	L2	1	10
	i Explain the methods to reduce evaporation losses.	L2	1	6
	Or			
	b i Discuss in detail about the parts and working of US Class-A Pan Evaporimeter.	L2	1	8
	i Discuss in detail about the working procedure to measure infiltration using double ring infiltrometer.	L2	1	8
12.	a i Explain the factors affecting runoff and their impact on runoff.	L2	2	8
	i Explain in detail about the methodology involved in SCS-CN method of estimating runoff volume.	L2	2	8
	Or			
	b i Explain the features of a hydrograph with a neat sketch.	L2	2	10

	i	Explain the different morphological characteristics of a catchment	L2	2	6	
	i	and how does these characteristics influence the runoff rate / volume for a catchment.				
13.	a	i	Discuss in detail about various drought management techniques.	L2	3	8
		i	Describe the various flood frequency analysis methods and their	L2	3	8
		i	usage.			
			Or			
	b	i	Explain the different flood management strategies.	L2	3	8
		i	What is DPAP? Explain its objectives and impact on natural	L2	3	8
		i	resources.			
14.	a	i	Discuss in detail about site selection for construction of reservoirs.	L3	4	8
		i		L3	4	8
		i	Discuss about the factors affecting erosion and sediment yield.			
			Or			
	b	i	Discuss at length about storage estimation and sedimentation control in reservoirs.	L3	4	8
		i		L3	4	8
		i	Explain in detail about the different kinds of spillway.			
15.	a	i	At a certain point in an unconfined aquifer of 3 km ² area, the water table was at an elevation of 102.00 m. Due to natural recharge in a wet season, its level rose to 103.20 m. A volume of 1.5 Mm ³ of water was then pumped out of the aquifer causing the water table to reach a level of 101.20 m. Assuming the water table in the entire aquifer to rsond in a similar way, estimate (a) the specific yield of the aquifer and (b) the volume of recharge during the wet season.	L3	5	8
		i	Discuss in detail about the steady state flow in ground water with	L3	5	8
		i	the governing equations.			
			Or			
	b	i	Discuss at length about the various rain water harvesting techniques adopted in rural and urban areas and their advantages.	L3	5	10
		i	What is artificial recharge and explain any two artificial recharging	L3	5	6
		i	techniques in detail.			