Roll No									

B.E./B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2024

FIFTH SEMESTER

GEOINFORMATICS BRANCH

GI 5004 – HYDROLOGY AND WATER RESOURCES ENGINEERING FOR GEOINFORMATICS

(REGULATIONS 2015/2019)

Time: 3 Hours Answer ALL Questions Max. Marks:100

CO 1	Understand the challenges faced by the scientific community in the management of water in the past as well as present situation in the face of ever changing climate and socioeconomic condition.
CO 2	Develop knowledge on the previously used scientific methods and environment development with particular reference to the environment status and scope of geospatial technology to address the WRM issues
CO 3	Comprehend the current research trends and the remote sensing data sources, products and tools that are of value along with their limitation so as to find solutions to the issue of various phenomena and domain of WRM
CO 4	Analyze the complicated and multi source and layered problems of water resources management with state of the art, tools and techniques for sustained livelihood.
CO 5	Apply the knowledge in the conceptualization of extraction and implementation of the Geospatial based solutions sets and to interpret them with tools from ancillary sources for dependable policy making

BL – Bloom's Taxonomy Levels:
(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analyzing, L5 - Evaluating, L6 - Creating)

PART- A (10 x 2 = 20 Marks)

Q. No	Questions	CO	BL
1	Define interception storage	1	L2
2	Highlight the use of weather RADAR for rainfall estimation	1	L1
3	How will you delineate a watershed	2	L1
4	State the use of LIDAR for urban mapping	2	L4
5	What is meant by flood risk zoning?	3	L4
6	State the NDVI for drought monitoring	3	L3
7	Differentiate aquifer and aquitard	4	L4
8	How do interface GIS with ground water model?	4	L2
9	State the criteria used for the prioritization of watershed	5	L1
10	How does remote sensing help in monitoring irrigation projects?	5	L1

PART- B (5 x 13 = 65 Marks)

Q. No	Questions	CO	BL
11 (a)	Explain the various components of hydrologic cycle and the human interference with a neat sketch	1	L5
	OR		
11 (b)	i) Explain the various factors affecting evaporation (7) ii) Describe the spectral properties of water. (6)	1	L2
12 (a)	Explain briefly the morphometric analysis of a watershed and highlight the use of geoinfomatics for this analysis	2	L2
	OR		
12 (b)	Explain the USDA SCS method and the role of geoinfomatics for runoff estimation	2	L2
13 (a)	i) Discuss about the different types of drought (6) ii) Explain the role of remote sensing and GIS in identifying the site selection of water harvesting structures (7)	3	L3
	OR		
13 (b)	With a neat sketch write down the governing equation for a well- mixed river system and describe the significance of each term in it.	3	L3
14 (a)	Describe the various surface indicators of ground water potential assessment	4	L4
	OR		
14 (b)	Describe about the mathematical models and role of geoinfomatics for ground water system studies	4	L4
15 (a)	Discuss the role of remote sensing and GIS for modeling of reservoir siltation	5	L3
	OR		
15 (b)	Describe about watershed modeling for sustainable development	5	L3

PART- C (1 x 15 = 15 Marks)

Q. No	Questions	CO	BL
16	i) Discuss briefly about the impact of climate and land use change on drainage basin (8) ii) Explain the role of geoinfomatics for developing the mitigation plan for the above impacts. (7)	1	L5