



**R20 Regulation**

**Subject code: 3E7AA**

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous, Accredited by NAAC with 'A+' Grade)

**B.Tech VII Semester Regular/Supplementary Examinations, December 2024**

**WATER RESOURCES ENGINEERING-II**  
(CIVIL ENGINEERING)

**Maximum Marks: 70**

**Date: 30.12.2024**

**Duration: 3 hours**

- Note:**
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Answer any one full question from each unit.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A			CO	Bloom Tx level
All the following questions carry equal marks (10x2M=20 Marks)				
1		What are the zones of storage?	1	L1
2		What are two main types of reservoirs based on usage?	1	L1
3		Name two natural forces that act vertically on a gravity dam.	2	L1
4		Is gravity dam safe?	2	L3
5		What are the different types of spillways?	3	L1
6		Where are stilling basins used?	3	L1
7		How does a weir differ from a barrage?	4	L1
8		Where silt excluders are generally placed in a diversion structure?	4	L1
9		Where are canal falls typically located in a canal system?	5	L1
10		What is the design principle of a notch fall?	5	L1
Part-B				Bloom Tx level
Answer All the following questions. (5X10M=50Marks)				
11	a	Discuss the factors affecting selection of type of dam [5M]	1	L2
	b	Explain how you will select site for a reservoir [5M]	1	L2
OR				
12	a	Explain different investigations necessary to determine economical capacity of a reservoir? [5M]	1	L2
	b	How does sedimentation affect the storage capacity and lifespan of a reservoir? [5M]	1	L3
13	a	Why is foundation preparation critical in the construction of a gravity dam? [5M]	2	L3
	b	Distinguish between a low gravity dam and high gravity dam. Derive the expression used for such a distinction. [5M]	2	L2
OR				
14	a	What is elementary profile of a gravity dam? What is the base width of the elementary profile? [5M]	2	L2
	b	What is the purpose of drainage galleries in a gravity dam? How do drainage galleries help in reducing uplift pressure? [5M]	2	L3
15	a	Describe the various methods of construction of earth dams. [5M]	3	L2

	b	Explain how energy dissipation arrangements are made below a spillway [5M]	3	L2
OR				
16	a	Explain the different types of spill way gates. [5M]	3	L2
	b	Classify various types of spillways and explain any two spillways. [5M]	3	L2
17	a	Explain with the help of diagram, the various component parts along with their functions of a diversion headwork. [5M]	4	L2
	b	Why is it important to remove silt from water entering a canal? Explain the difference between a silt ejector and a silt excluder. [5M]	4	L2
OR				
18	a	Compare Bligh's theory and Khosla's theory [5M]	4	L4
	b	Discuss the types of failure of a weir founded on a permeable foundation. [5M]	4	L2
19	a	Why are canal falls necessary? Describe briefly with sketches the various types of canal falls [5M]	5	L2
	b	What is meant by "canal regulation" and what are the different types of "canal regulation works"? [5M]	5	L2
OR				
20	a	What are the different types of cross drainage works that are necessary on a canal alignment? State briefly the conditions under which each one is used. [5M]	5	L3
	b	List out the types of canal outlets and discuss them. [5M]	5	L2