



R20 Regulation

Subject code: 3P4CB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech IV Semester Supplementary Examinations, December 2024

FLUID MECHANICS AND HYDRAULIC MACHINES (Mechanical Engineering)

Maximum Marks: 70

Date: 05.12.2024

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 which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20) Marks)		CO	Bloom Tx
1	Define Specific gravity.	1	L1
2	Name the different types of Pressures.	1	L1
3	Define Streak line.	2	L1
4	Define drag and lift.	2	L1
5	Write assumption in Bernoulli's equation?	3	L1
6	List out the Minor losses in Pipes.	3	L1
7	Write the types of hydraulic turbines.	4	L1
8	What is mean by impulse turbines?	4	L1
9	Define pump.	5	L1
10	Write the application of centrifugal pump?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	Briefly explain the physical properties of fluids with units. [10M]	1	L2
OR			
12	Explain U-tube manometers with neat sketch and find pressure in U- tube[10M]	1	L2
13	Briefly explain types of fluid flows. [10M]	2	L2
OR			
14	Derive continuity equation for three dimensional flows. [10M]	2	L2
15	Explain Separation of Boundary layer with neat sketch. [10M]	3	L2
OR			
16	Water is flowing through a pipe having diameter 20 cm and 10 cm at section-1 and section-2 respectively the rate of flow through pipe is 35 lit/sec. The section-1 is 6m above datum and section-2 is 4m above datum. If the pressure at section-1 is 39.24N/cm ² , find the intensity of pressure at section-2. [10M]	3	L2

17	A jet of water of diameter 7.5 cm strikes a curved plate at its centre with a velocity of 20 m/s. The curved plate is moving with a velocity of 8 m/s in the direction of the jet. The jet is deflected through an angle of 165° . Assuming the plate is smooth. Find (i) Force exerted on the plate in the direction of jet, (ii) Power of the jet, and (iii) Efficiency of the jet. [10M]	4	L2
	OR		
18	Explain construction and working proportion of Pelton wheel with neat sketch. [10M]	4	L2
19	How do you Classify the pumps? [10M]	5	L2
	OR		
20	Draw and explain Reciprocating pump with neat sketch [10M]	5	L2