



R20 Regulation *Subject code: 3P7AA*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

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

ESTIMATION & COSTING
 (CIVIL ENGINEERING)

Maximum Marks: 70

Date: 10.01.2025

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	What are the different types of estimates used in construction?		1	L1
2	What is a specification report on an estimate, and what key information should it contain?		1	L2
3	Why is it important to maintain accurate records of measurements when preparing detailed estimates for construction works?		2	L1
4	What are the primary considerations for calculating earthwork quantities for roads, embankments, and canals?		2	L2
5	What is rate analysis, and what are its key principles?		3	L1
6	Explain the significance of the SSR (State Schedule of Rates).		3	L2
7	What are the main types of contracts used in civil engineering?		4	L1
8	Write the process of preparing work bills.		4	L2
9	Write the concept of depreciation in property valuation?		5	L1
10	What is a sinking fund, and how is it related to property valuation?		5	L2

Part-B

Answer All the following questions.		(5X10M=50Marks)	CO	Bloom Tx
11	A) Evaluate the data required for the preparation of estimates. What challenges might arise if the data is incomplete or inaccurate? [5M] B) You are tasked with preparing an approximate estimate for a residential building with a floor area of 150 m ² . The average construction cost per square meter in the area is ₹18,000. Calculate the approximate construction cost of the building. [5M]		1	L5 L3
OR				
12	A) Assess the significance of preparing a specification report on estimates. How does this report impact decision-making and project execution? [5M] B) Discuss the principles of working out quantities in civil engineering estimates. Explain the difference between detailed estimates and abstract estimates, and the purpose of each in project planning. [5M]		1	L5 L4
13	Evaluate the importance of accurate estimation in road works. What consequences can arise from underestimating or overestimating quantities in road construction? [10M]		2	L5

	OR		
14	<p>A) Assess the impact of improper estimation on the construction of water supply systems. What best practices can be implemented to improve the accuracy of these estimates? [5M]</p> <p>B) A culvert is designed with the following dimensions: Bottom Width: 2.5 m, Height: 2.0 m, side slope 2:1, Length: 10.0 m. Calculate the volume of the culvert in cubic meters. If the cost of materials is ₹6,000 per cubic meter, determine the total material cost for the culvert. [5M]</p>	2	L4 L3
15	<p>A) Evaluate the significance of the SSR (State Schedule of Rates) and DSR (District Schedule of Rates) in the rate analysis process. How do these documents aid in cost estimation? [5M]</p> <p>B) Discuss the concept of lead statements in rate analysis. How does it influence the calculation of material costs in a project? [5M]</p>	3	L5 L4
	OR		
16	<p>A) Explain the role of overhead charges and contingent charges in rate analysis. Give examples of each and discuss how they are accounted for in the final cost estimation of a construction project. [5M]</p> <p>B) Differentiate between rate analysis for schedule items and non-schedule items. Describe a scenario where a non-schedule item might be required and how its rate would be calculated. [5M]</p>	3	L4 L4
17	<p>A) Explain the importance of a Bar Bending Schedule (BBS) in civil engineering projects. List the key elements included in a BBS for beams, columns, and slabs. [5M]</p> <p>B) Describe the different types of contracts commonly used in civil engineering projects. Compare their advantages and disadvantages with examples. [5M]</p>	4	L4 L4
	OR		
18	<p>A) A column has a reinforcement requirement as per the BBS: 8 bars of 16 mm diameter and stirrups of 10 mm diameter spaced at 150 mm center-to-center over a height of 3 meters. Calculate the total length of reinforcement steel required for the column, considering standard hooks and bends. [5M]</p> <p>B) Explain the purpose of a work bill and the typical contents included in it. [5M]</p>	4	L3 L4
19	<p>A) A property's monthly rent is ₹25,000. Considering 10% of the gross annual rental income is allocated for repairs and maintenance, calculate the net annual income. Then, determine the capitalized value of the property using a capitalization rate of 6%. [5M]</p> <p>B) Discuss the concept of capitalized value and year's purchase in property valuation. How are these concepts used to determine the value of an investment property? [5M]</p>	5	L3 L4
	OR		
20	<p>A) Assess the rental method of valuation. What are its advantages and limitations compared to other valuation methods? [5M]</p> <p>B) A property is expected to generate a gross annual income of ₹5,00,000, with annual outgoings of ₹1,00,000. Calculate the net annual income. If the property's capitalization rate is 8%, determine its capitalized value. [5M]</p>	5	L5 L3