GUJARAT TECHNOLOGICAL UNIVERSITY

6 SEMESTER – OLD PAPER – S22 TO W25 – QUESTION BANK

Subject Name & Code: Estimation, Specifications and Project Management- 3161303

Chapter 1: Construction Technology

Repeated Questions:

1. Foundations:

- **Q.** Enlist types of Foundation and explain any one with neat sketch. **(SUMMER 2022, 7 Marks; WINTER 2022, 4 Marks)**

2. Masonry:

- **Q.** Explain rubble masonry with its types in details. **(WINTER 2022, 3 Marks; SUMMER 2024, 3 Marks OR)**

Other Important Questions:

1. Subsurface Investigation:

- **Q.** Which methods can be used for subsurface investigation? State its importance. **(WINTER 2024, 3 Marks)**

2. Foundations:

- **Q.** Write purpose of foundation. **(WINTER 2023, 4 Marks)**
- **Q.** Enlist and explain various type of foundation. **(SUMMER 2024, 3 Marks)**
- **Q.** Enlist types of shallow foundation and describe isolated sloped footing in detail. **(SUMMER 2025, 3 Marks)**

3. Masonry:

- **Q.** Illustrate different types of Rubble Masonry. **(SUMMER 2025, 7 Marks)**
- **Q.** Explain various type of masonry. **(WINTER 2024, 3 Marks OR)**
- **Q.** Enlist various type of masonry and explain any one in detail. **(WINTER 2025, 4 Marks)**

Chapter 2: Elements of Estimating and Costing

Repeated Questions:

1. Quantity Estimation from Given Figure (Numerical):

- **Q.** Estimate the quantity for Excavation from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2022, 3 Marks; SUMMER 2023, 7 Marks; WINTER 2023, 3 Marks; WINTER 2025, 3 Marks)**
- **Q.** Estimate the quantity for Brick masonry work and Plaster work from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2022, 7 Marks; WINTER 2023, 7 Marks; SUMMER 2024, 7 Marks)**
- **Q.** Estimate the quantity for B.B.C.C. from Figure 1. [Diagram required – refer to the original question paper] **(SUMMER 2023, 3 Marks; WINTER 2023, 4 Marks)**
- **Q.** Estimate the quantity for R.C.C. work from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2022, 4 Marks; WINTER 2025, 4 Marks)**

2. Rate Analysis:

- **Q.** Write Rate analysis for the Excavation / in ordinary soil / for foundation in ordinary soft soil. **(WINTER 2022, 4 Marks OR; SUMMER 2023, 4 Marks; WINTER 2025, 4 Marks)**
- **Q.** Write Rate analysis for the P.C.C. proportion (1:6:12). **(WINTER 2023, 7 Marks OR; SUMMER 2024, 7 Marks OR)**
- **Q.** Write Rate analysis for the Oil Painting. **(WINTER 2023, 4 Marks; SUMMER 2024, 4 Marks OR)**
- **Q.** Write Rate analysis for the Marble flooring. **(WINTER 2023, 4 Marks OR; SUMMER 2024, 4 Marks)**

Other Important Questions:

1. Estimation: Concepts, Types and Methods:

- **Q.** Explain Long wall - short wall method for Estimate by example. **(SUMMER 2024, 4 Marks)**
- **Q.** What is Estimation? What is importance of the Estimation? **(WINTER 2022, 4 Marks)**
- **Q.** Explain center line method of estimation with suitable example. **(SUMMER 2022, 7 Marks)**
- **Q.** Differentiate between Long-wall Short-wall and Centre Line method. **(SUMMER 2025, 4 Marks)**
- **Q.** State the objectives of estimation. **(SUMMER 2025, 4 Marks)**
- **Q.** Explain the methods of Estimate. **(WINTER 2024, 3 Marks)**
- **Q.** Explain the types of Estimate. **(WINTER 2024, 4 Marks)**
- **Q.** Enlist the types of cost estimates. **(WINTER 2025, 3 Marks OR)**
- **Q.** State the factors affecting cost of project. **(SUMMER 2025, 7 Marks)**
- **Q.** Discuss work charge establishment. **(SUMMER 2025, 3 Marks)**

2. Quantity Estimation from Given Figure (Numerical):

- **Q.** Estimate the quantity for Brick masonry work in septic tank from Figure 1. [Diagram required – refer to the original question paper] **(SUMMER 2023, 4 Marks)**
- **Q.** Estimate the quantity for R.C.C. Slab from Figure 1. [Diagram required – refer to the original question paper] **(SUMMER 2023, 3 Marks)**
- **Q.** Estimate the quantity for 30 cm Brick masonry work in Soak pit from Figure 1. [Diagram required – refer to the original question paper] **(SUMMER 2023, 4 Marks)**
- **Q.** Estimate the quantity for P.C.C. & R.C.C. from Figure 1. [Diagram required – refer to the original question paper] **(SUMMER 2024, 4 Marks)**
- **Q.** Estimate the quantity for PCC from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2022, 3 Marks)**

- **Q.** Estimate the quantity for Kotah stone flooring from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2023, 3 Marks)**
- **Q.** Prepare Abstract (Cost Estimation) for the Corner step from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2023, 4 Marks)**
- **Q.** Estimate the quantity for P.C.C. work, Brick masonry work and Plaster work from Figure 1. [Diagram required – refer to the original question paper] **(WINTER 2025, 7 Marks)**

3. Cost Analysis Problems (Numerical):

- **Q.** Budget was initially set at RS 10,000 for constructing the cylindrical water tank with a diameter of 4m and height of 5m. Cost of construction is RS 150 per cubic meter for actual construction. Analyze whether the project remains within budget or not? **(WINTER 2024, 3 Marks)**
- **Q.** A contractor estimates the cost of building a two-room structure at RS 90,000 using conventional materials with 12% maintenance costs annually. B contractor proposes a modern alternative with a cost of RS 1,00,000 but a 8% maintenance costs annually. Evaluate the total costs after 5 years for both contractors. Which contractor is more cost-effective? **(WINTER 2024, 4 Marks)**

4. Rate Analysis:

- **Q.** Prepare rate analysis for Cement concrete (1:2:4). **(SUMMER 2022, 7 Marks)**
- **Q.** Define Rate analysis. **(SUMMER 2022, 3 Marks)**
- **Q.** Prepare the Rate Analysis for RCC work in 1:1.5:3 proportion. **(SUMMER 2025, 7 Marks)**
- **Q.** Prepare the Rate Analysis for single coat smooth plaster in 1:3 proportion. **(SUMMER 2025, 7 Marks OR)**
- **Q.** Evaluate the Rate analysis for the BBCC (1:6:12). **(WINTER 2024, 7 Marks)**
- **Q.** Evaluate the Rate analysis for the P.C.C. proportion (1:4:8). **(WINTER 2024, 7 Marks OR)**
- **Q.** Explain the factors affecting Rate analysis. **(WINTER 2025, 3 Marks)**
- **Q.** Create Rate analysis for PCC (1:4:8) below column footing in foundation. **(WINTER 2025, 7 Marks)**
- **Q.** Analyze the factors affecting to the Rate analysis. **(WINTER 2025, 4 Marks OR)**
- **Q.** Create Rate analysis for 1st class brickwork in cm (1:6). **(WINTER 2025, 7 Marks OR)**
- **Q.** Write Rate analysis for the 1.0m wide RCC step proportion (1:2:4) with steel reinforcement. **(SUMMER 2023, 7 Marks)**
- **Q.** Write Rate analysis for the Whitewashing in three coats. **(SUMMER 2023, 4 Marks OR)**
- **Q.** Write Rate analysis for the Brickbat Cement Concrete proportion (1:6:12) for foundation and plinth. **(SUMMER 2023, 7 Marks OR)**
- **Q.** Write Rate analysis for the RCC slab proportion (1:2:4) with steel reinforcement. **(SUMMER 2024, 7 Marks)**
- **Q.** Write Rate analysis for the Sand filling in plinth. **(WINTER 2022, 4 Marks)**
- **Q.** Write Rate analysis for the BBCC (1:6:12). **(WINTER 2022, 7 Marks)**
- **Q.** Write Rate analysis for the 12 cm RCC slab (1:2:4) with steel reinforcement. **(WINTER 2022, 7 Marks OR)**
- **Q.** Write Rate analysis for the RCC beam proportion (1:2:4) with steel reinforcement. **(WINTER 2023, 7 Marks)**

Chapter 3: Specifications

Repeated Questions:

1. Specifications: Concept, Types and Classification:

- **Q.** Give classification of specification. **(SUMMER 2023, 7 Marks; SUMMER 2024, 3 Marks)**

2. Specifications of Works:

- **Q.** Write Specifications of excavation. **(WINTER 2022, 7 Marks OR; SUMMER 2024, 7 Marks OR)**
- **Q.** Write detailed specifications of R.C.C. (1:2:4). **(SUMMER 2022, 7 Marks; SUMMER 2024, 7 Marks; WINTER 2024, 7 Marks)**
- **Q.** Write Specifications of 20mm sand faced cement plaster. **(WINTER 2023, 7 Marks; WINTER 2024, 7 Marks OR; WINTER 2025, 7 Marks OR)**
- **Q.** Write Specifications of Brick work I Class in cm (1:6). **(WINTER 2022, 7 Marks; WINTER 2025, 7 Marks)**

Other Important Questions:

1. Specifications: Concept, Types and Classification:

- **Q.** Define Specification. **(SUMMER 2022, 3 Marks)**
- **Q.** Enlist uses of Specification. **(SUMMER 2022, 4 Marks)**
- **Q.** Classify Specifications. **(SUMMER 2022, 4 Marks)**
- **Q.** Explain various types of specification. **(WINTER 2024, 4 Marks)**
- **Q.** Describe application of specification in environment engineering. **(WINTER 2024, 4 Marks OR)**

2. Specifications of Works:

- **Q.** Write Specifications of Cement-concrete work Flooring in proportion (1:2:4). **(SUMMER 2023, 7 Marks OR)**
- **Q.** Write Specifications of painting in three coats. **(WINTER 2023, 7 Marks OR)**
- **Q.** Write the detail specification for 1st class brick masonry work. **(SUMMER 2025, 7 Marks)**
- **Q.** Write the detail specification for PCC work in 1:4:8 proportion. **(SUMMER 2025, 7 Marks OR)**

Chapter 4: Contracts and Tenders

Repeated Questions:

1. Contracts and Arbitration:

- **Q.** Explain various types of contract. **(WINTER 2022, 7 Marks; WINTER 2023, 7 Marks; WINTER 2024, 4 Marks)**
- **Q.** Write Essential requirements of contract. **(SUMMER 2023, 7 Marks; SUMMER 2024, 4 Marks)**
- **Q.** Describe Lump-sum Contract. **(SUMMER 2022, 7 Marks OR; SUMMER 2023, 3 Marks; SUMMER 2025, 4 Marks)**
- **Q.** What is contract? What is importance of the contract? **(WINTER 2022, 3 Marks OR; WINTER 2023, 3 Marks)**
- **Q.** Write a short note on Arbitration. **(SUMMER 2022, 7 Marks; SUMMER 2025, 3 Marks)**
- **Q.** Describe Unit-rate Contract. **(SUMMER 2022, 7 Marks; SUMMER 2025, 4 Marks OR)**

2. Earnest Money and Security Deposit:

- **Q.** What is Earnest money and Security deposit? **(SUMMER 2023, 3 Marks OR; SUMMER 2024, 7 Marks)**

3. Tenders:

- **Q.** What is Tender? What is importance of the Tender? **(WINTER 2022, 3 Marks; SUMMER 2024, 4 Marks OR)**
- **Q.** What is unbalanced Tender? **(WINTER 2023, 3 Marks OR; WINTER 2024, 3 Marks)**

Other Important Questions:

1. Contracts and Arbitration:

- **Q.** Give classification of Contracts. **(SUMMER 2022, 4 Marks)**
- **Q.** What are the essential requirements of a valid Contract? **(SUMMER 2022, 7 Marks)**
- **Q.** State the different types of contracts, explain any one in detail. **(SUMMER 2025, 7 Marks)**
- **Q.** Write the essential requirement of Contract. **(SUMMER 2025, 3 Marks)**
- **Q.** Describe item rate contract. **(WINTER 2025, 3 Marks)**
- **Q.** Describe Lump sum contract along with its advantages and disadvantages. **(WINTER 2025, 7 Marks)**

2. Earnest Money and Security Deposit:

- **Q.** Differentiate between "Earnest Money" and "Security Deposit". **(SUMMER 2022, 4 Marks)**
- **Q.** Discuss the security deposit and earnest money deposit. **(SUMMER 2025, 3 Marks OR)**
- **Q.** Explain security deposit in the tender. **(WINTER 2025, 3 Marks OR)**

3. Tenders:

- **Q.** Explain various types of Tender. **(WINTER 2022, 7 Marks OR)**
- **Q.** Explain three forms of Tender. **(WINTER 2023, 7 Marks OR)**
- **Q.** What do you mean by Tender? **(SUMMER 2022, 3 Marks)**
- **Q.** Describe Unbalanced Tender with example. **(SUMMER 2022, 4 Marks)**
- **Q.** What are three forms of Tender? **(WINTER 2024, 3 Marks OR)**
- **Q.** Classify the Tender. **(WINTER 2024, 4 Marks OR)**
- **Q.** Classify the types of tender and give example of them. **(WINTER 2025, 7 Marks OR)**

4. Tender Notice:

- **Q.** Draft out a typical tender notice to be given in local newspaper for construction of laboratory building worth RS 20,000,000. **(SUMMER 2023, 7 Marks OR)**

- **Q.** Draft out a typical tender notice to be given in local newspaper for construction of laboratory building worth RS 10,00,000. **(SUMMER 2024, 7 Marks OR)**
- **Q.** How Tender notice is prepared? **(SUMMER 2022, 7 Marks)**
- **Q.** A local municipal corporation wants to construct overhead water tank with 10,00,000 litre capacity. Prepare tender notice. **(SUMMER 2025, 3 Marks)**

Chapter 5: Conditions of Contract

Repeated Questions:

1. General Provisions of Conditions of Contract:

- **Q.** What are general provisions of condition of contract? **(SUMMER 2024, 3 Marks OR; WINTER 2025, 4 Marks OR)**

Other Important Questions:

None identified.

Chapter 7: Project Management with Network Technique

Repeated Questions:

1. Project Planning, Scheduling and Management:

- **Q.** Explain four methods of project planning. **(WINTER 2022, 3 Marks OR; SUMMER 2024, 7 Marks OR)**
- **Q.** Explain factors affecting Project planning. **(WINTER 2022, 3 Marks; WINTER 2023, 3 Marks OR)**
- **Q.** What do you mean by Project Scheduling? **(SUMMER 2022, 3 Marks; SUMMER 2023, 3 Marks; WINTER 2024, 3 Marks)**

2. PERT and CPM:

- **Q.** Difference between PERT and CPM / Differentiate between CPM & PERT / Compare and contrast PERT and CPM... [Data truncated in source – refer to the original question paper] **(SUMMER 2022, 4 Marks; WINTER 2022, 4 Marks; SUMMER 2024, 7 Marks; WINTER 2024, 7 Marks)**

3. Critical Path and Charts from Given Data (Numerical):

- **Q.** From the data of table 1, create critical path bar chart. [Diagram required – refer to the original question paper] **(WINTER 2022, 7 Marks; SUMMER 2023, 7 Marks; WINTER 2023, 7 Marks)**
- **Q.** From the data of table 1, prepare the network diagram and create critical path. [Diagram required – refer to the original question paper] **(WINTER 2022, 7 Marks OR; SUMMER 2023, 7 Marks OR; WINTER 2023, 7 Marks OR; WINTER 2024, 7 Marks)**

Other Important Questions:

1. Project Planning, Scheduling and Management:

- **Q.** What is Project planning? **(SUMMER 2024, 3 Marks OR)**
- **Q.** Explain needs of Construction Management. **(WINTER 2023, 3 Marks OR)**
- **Q.** Define Project Management. **(SUMMER 2022, 3 Marks)**
- **Q.** What is the importance of Project Planning? **(SUMMER 2022, 4 Marks)**
- **Q.** State the importance of project scheduling. **(SUMMER 2025, 3 Marks)**
- **Q.** State the objectives of project planning. **(SUMMER 2025, 3 Marks OR)**
- **Q.** How would you apply the key components of project planning? **(WINTER 2024, 4 Marks)**
- **Q.** Explain the basic functions of Project Planning. **(WINTER 2025, 7 Marks)**

2. Bar Chart, Gantt Chart and Milestone Chart:

- **Q.** Explain about Bar chart for Project Management. **(SUMMER 2024, 4 Marks OR)**
- **Q.** Explain advantage and disadvantage of Bar chart. **(WINTER 2023, 4 Marks)**
- **Q.** What do you mean by Bar chart? **(SUMMER 2022, 3 Marks)**
- **Q.** Write short notes on Milestone chart and Bar chart. **(SUMMER 2025, 7 Marks)**
- **Q.** Design and draw a milestone chart for a project of developing school. **(WINTER 2024, 7 Marks)**

3. Network Diagram, Activities and Events:

- **Q.** Difference between Event and Activity. **(SUMMER 2023, 4 Marks)**
- **Q.** What do you mean by Preceding Activity in the project management? **(SUMMER 2024, 3 Marks)**
- **Q.** Explain advantage and disadvantage of Network diagram for Project Management. **(SUMMER 2024, 4 Marks)**
- **Q.** What do you mean by Preceding Activity in the project management? Explain it with example. **(WINTER 2023, 3 Marks)**
- **Q.** What do you mean by dummy activity in the project management? **(WINTER 2023, 3 Marks)**

- **Q.** Explain about Network diagram for Project Management. **(WINTER 2023, 4 Marks OR)**
- **Q.** Describe project networking technique with one example. **(SUMMER 2022, 4 Marks)**
- **Q.** Illustrate project networking with example. **(SUMMER 2025, 4 Marks)**
- **Q.** Illustrate dummy activity in project network. **(SUMMER 2025, 4 Marks OR)**
- **Q.** Explain about Elements of Network Diagram. **(WINTER 2024, 4 Marks)**
- **Q.** Define (1) Head Event (2) Tail Event (3) Dual Event **(WINTER 2025, 3 Marks)**
- **Q.** Define (1) Parallel activity (2) Serial Activity (3) Preceding Activity (4) Successor Activity **(WINTER 2025, 4 Marks)**

4. PERT and CPM:

- **Q.** What do you mean by CPM? **(SUMMER 2022, 3 Marks)**
- **Q.** Write short notes on PERT and CPM. **(SUMMER 2025, 7 Marks OR)**
- **Q.** Explain about PERT for Project Management. **(WINTER 2025, 3 Marks OR)**
- **Q.** Explain about CPM for Project Management. **(WINTER 2025, 4 Marks OR)**

5. Critical Path and Charts from Given Data (Numerical):

- **Q.** From the data of table 1, create critical path Gantt chart (bar chart). [Diagram required – refer to the original question paper] **(WINTER 2024, 7 Marks OR)**
- **Q.** Create critical path for the project completion time using CPM from fig 2. [Diagram required – refer to the original question paper] **(WINTER 2025, 7 Marks OR)**

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