GUJARAT TECHNOLOGICAL UNIVERSITY

DI -4 SEMESTER – OLD PAPER – S23 TO S25 – QUESTION BANK(English)

Subject Name & Code:

Electrical Wiring Estimating & Contracting- 4340903

Unit I - Electrical Wiring and IE Rules

Repeated Questions:

1. **List and explain different types of wires with a diagram.**
    - Appeared in: W23 (Q1a, 03 marks), W24 (Q1a, 03 marks), SUM23 (OR Q1c, 07 marks)
2. **Draw and explain Godown wiring and Staircase wiring.**
    - Appeared in: W23 (OR Q1c, 07 marks), SUM23 (Q1b, 04 marks), SUM24 (Q1c, 07 marks)
3. **List and explain tools used for wiring.**
    - Appeared in: W23 (Q1c, 07 marks), W24 (Q1b, 04 marks), SUM25 (Q1a, 03 marks)
4. **Explain I.E. Rules for domestic wiring/service connection.**
    - Appeared in: W24 (Q1c, 07 marks), SUM23 (Q3a, 03 marks), SUM24 (Q1a, 03 marks), SUM25 (OR Q4, 07 marks)
5. **Explain Master ON/OFF control wiring.**
    - Appeared in: W24 (OR Q1c, 07 marks), SUM24 (OR Q1c, 07 marks)

Other Important Questions:

6. List types of wiring systems and explain any one. (SUM23 - OR Q1c, 07 marks), (SUM24 - Q1b, 04 marks)
7. List general rules for domestic wiring estimation. (W23 - Q3a, 03 marks), (SUM23 - Q3a, 03 marks), (SUM24 - Q3a, 03 marks)
8. Explain general rules for domestic wiring. (W24 - OR Q3a, 03 marks)
9. List different tests for new domestic wiring installation. (SUM23 - Q1c, 07 marks)
10. What is the importance of sub-circuit? How to select the number of sub-circuits according to IE Rules? (W24 - Q3a, 03 marks)
11. Draw and explain Corridor wiring. (SUM25 - OR Q1c, 07 marks)
12. Write the importance of wiring layout. (SUM25 - OR Q2d, 03 marks)
13. Explain circuit and sub-circuit. (SUM25 - OR Q2e, 04 marks)

Unit II - Elements of Estimating and Concepts of Contracting

Repeated Questions:

1. **Compare Scientific and Approximate Estimation.**
    - Appeared in: W23 (Q1b, 04 marks), SUM23 (Q2b, 04 marks), SUM24 (Q2c, 07 marks), SUM25 (OR Q3, 04 marks)
2. **Explain S.O.R. (Schedule of Rates) and its role in material cost calculation.**
    - Appeared in: W23 (Q2c, 07 marks), W24 (Q2b, 04 marks), SUM23 (OR Q4c, 07 marks), SUM24 (Q2b, 04 marks)
3. **Explain E.M.D. (Earnest Money Deposit) and Security Deposit.**
    - Appeared in: W23 (Q2c, 07 marks), SUM23 (OR Q2b, 04 marks), SUM24 (OR Q2b, 04 marks)
4. **What is a Tender? Explain the tender process/terms and conditions.**
    - Appeared in: SUM23 (OR Q2c, 07 marks), SUM24 (OR Q2a, 03 marks), SUM25 (Q2c, 07 marks)
5. **Explain the purchase procedure / inquiry-based purchase procedure.**
    - Appeared in: W24 (Q2c, 07 marks), SUM23 (Q2c, 07 marks), SUM24 (Q3b, 04 marks)

Other Important Questions:

6. What is estimation? Explain the abilities of a good estimator. (SUM25 - Q2a, 03 marks)
7. What is E-Tender? (SUM25 - Q2c, 07 marks)
8. List tender inviting methods. (SUM24 - OR Q2a, 03 marks)
9. Write the reasons for failure of tender. (W24 - OR Q2b, 04 marks)
10. Explain different types of contracts. (SUM24 - OR Q2c, 07 marks)
11. Prepare an inquiry form for purchasing electrical items. (W23 - OR Q2c, 07 marks), (W24 - Q2c, 07 marks), (SUM25 - Q1b, 04 marks)
12. Explain overhead charges. (SUM24 - OR Q3b, 04 marks), (SUM25 - OR Q3, 03 marks)

Unit III - Estimating and Costing of Domestic and Industrial Wiring

Repeated Questions:

1. **Calculate the full load current and starting current for a given 3-Φ induction motor rating.**
    - Appeared in: W23 (Q2a, 03 marks), W23 (OR Q2a, 03 marks), W24 (Q3c, 07 marks), SUM23 (OR Q3c, 07 marks), SUM24 (Q3c, 07 marks), SUM25 (Q2b, 04 marks), SUM25 (OR Q2f, 07 marks)
2. **For a given residential flat/room, calculate: (1) Total Load (2) Number of Sub-circuits (3) Total Current (4) Size of Main Switch.**
    - Appeared in: W23 (Q2b, 04 marks), W23 (OR Q2b, 04 marks), W24 (OR Q2c, 07 marks), SUM23 (Q3c, 07 marks), SUM24 (Q3c, 07 marks)
3. **Draw a single line diagram for a given domestic/industrial installation.**
    - Appeared in: SUM23 (Q3c, 07 marks), SUM23 (OR Q3c, 07 marks), SUM24 (Q3c, 07 marks), SUM25 (Q2b, 04 marks)
4. **Compare Residential (Domestic) wiring and Industrial wiring.**
    - Appeared in: SUM23 (Q3b, 04 marks), W24 (Q4a, 03 marks)

Other Important Questions:

5. Explain the salient features of Industrial wiring. (W23 - Q3b, 04 marks), (SUM23 - OR Q3b, 04 marks)
6. List the estimation steps for domestic wiring. (W24 - Q3b, 04 marks)
7. List the estimation steps for Industrial wiring. (W24 - Q3c, 07 marks)
8. Draw and explain the panel wiring of an induction motor. (W24 - OR Q3b, 04 marks)
9. Explain MCB and ELCB. (W23 - OR Q3b, 04 marks)
10. Write the formula for finding the full load current of 1-phase and 3-phase Induction Motor. (W23 - OR Q3a, 03 marks)
11. Write the ratings of main switch, distribution board, and wire used for domestic wiring. (SUM24 - OR Q3a, 03 marks)
12. A 6 storied building has 4 flats on each floor... Calculate the total load of the building, size of main switch, No. of sub circuit. (W24 - OR Q3c, 07 marks)
13. In a three storied hostel building, there are total 50 lights, 15 fans... Find (1) load on each floor (2) Total load... (W23 - Q3c, 07 marks)
14. A newly constructed room size 4m x 4m x 4m has following electrical outlets... Estimate the require material and cost of wiring installation. (W24 - OR Q2c, 07 marks)
15. A Domestic wiring is carried out in 4m*4m*4m room... find (1)total load in watt. (2)full load current (3)size of conductor (4)draw electrical wiring diagram(5)Costing. (SUM24 - Q3c, 07 marks)

16. In a workshop 25m X 15m X 5m, 3Φ, 50Hz, 415Volts, 5HP Squirrel cage Induction Motor is to be installed... Calculate (1) full load current (2) Starting current (3) Selection of main switch and (4) selection of Starter. (SUM23 - OR Q3c, 07 marks)
17. Prepare the estimate to install a 5 H.P., 440V, 3-phase squirrel cage induction motor in a small workshop. (SUM25 - OR Q2f, 07 marks)

Unit IV - Electrification of Multistoried Building

Repeated Questions:

1. **Explain the necessity/importance of a DG Set as a standby power supply in a multistoried building.**
    - Appeared in: SUM23 (Q4a, 03 marks), W24 (OR Q4b, 04 marks), SUM24 (Q4c, 07 marks)
2. **Explain the Fire Alarm System / Smoke Detection System in a multistoried building.**
    - Appeared in: SUM23 (Q4b, 04 marks), SUM24 (Q4b, 04 marks), SUM24 (OR Q4b, 04 marks)
3. **Explain the requirement of approval from the Electrical Inspector for a high-rise multistoried building.**
    - Appeared in: SUM24 (Q4a, 03 marks), SUM25 (Q4a, 03 marks), SUM25 (OR Q4c, 07 marks)
4. **Draw and explain Busbar and Busbar Chamber.**
    - Appeared in: W24 (Q4b, 04 marks), SUM23 (OR Q4a, 03 marks), SUM24 (OR Q4c, 07 marks)

Other Important Questions:

5. Compare electrification of residential and multistoried building. (W24 - Q4a, 03 marks)
6. Explain underground service connection. Compare domestic and industrial service connection. (W24 - Q4c, 07 marks)
7. List material required for 3-Φ, 4 wire underground distribution line. (W24 - OR Q4c, 07 marks)
8. Draw a complete diagram of a stay set. (W24 - OR Q4a, 03 marks)
9. Explain the use of safety devices in (1) lift (2) escalators. (SUM23 - Q4c, 07 marks)
10. List factors to be considered during wiring of a fire alarm system. (SUM23 - OR Q4b, 04 marks)
11. Write a short note on "Load calculation for lifts, escalators, and air conditioners in a multistoried building". (W23 - OR Q3c, 07 marks)
12. Clarify the statement “An approval from electrical inspector is necessary before giving supply to newly constructed BIG BAZAR complex”. (W23 - Q4b, 04 marks)
13. Estimation of total cost of electrification using SOR of a multistoried building. (SUM24 - OR Q4a, 03 marks)

Unit V - Estimation of Overhead and Underground Distribution System

Repeated Questions:

1. **Compare Overhead (O.H.) and Underground (U.G.) distribution systems.**
   - Appeared in: SUM23 (Q2a, 03 marks), SUM23 (Q5b, 04 marks), SUM24 (Q5a, 03 marks), SUM25 (Q5a, 03 marks)
2. **Draw and explain an Overhead Service Connection / Underground Service Connection.**
   - Appeared in: W24 (Q5b, 04 marks), SUM23 (Q5b, 04 marks), SUM24 (OR Q5b, 04 marks), SUM25 (OR Q5a, 03 marks), SUM25 (OR Q5b, 04 marks)
3. **List the materials required for an Overhead / Underground distribution line.**
   - Appeared in: SUM23 (Q2a, 03 marks), SUM23 (OR Q5b, 04 marks), W24 (OR Q4c, 07 marks)
4. **Draw and explain a Stay Set. List the materials required for it.**
   - Appeared in: W24 (OR Q4a, 03 marks), W24 (OR Q5a, 03 marks), SUM23 (OR Q5c, 07 marks), SUM24 (Q5b, 04 marks)

Other Important Questions:

5. What is a service connection? Explain the types of service connection. (SUM25 - OR Q5a, 03 marks)
6. Explain I.E. Rules for service connection. (W23 - OR Q5a, 03 marks), (SUM23 - OR Q5a, 03 marks)
7. List the properties of overhead line supports. (W23 - Q5a, 03 marks), (W24 - Q5a, 03 marks), (SUM23 - Q5a, 03 marks)
8. List the main components of an overhead distribution system. (W23 - OR Q5a, 03 marks)
9. List the reasons for the failure of line insulators. (W23 - OR Q5b, 04 marks), (W24 - OR Q5b, 04 marks), (SUM25 - Q4b, 03 marks)
10. Prepare an estimate and total cost for an Overhead / Underground distribution line project based on given specifications (Voltage, Phase, Length, Span, Conductor type). (W23 - Q5c, 07 marks), (W23 - OR Q5c, 07 marks), (W24 - Q5c, 07 marks), (SUM23 - Q5c, 07 marks), (SUM24 - Q5c, 07 marks), (SUM24 - OR Q5c, 07 marks), (SUM25 - Q5c, 07 marks)
11. A small factory having a load of 25 kW at 415V, 3-Φ, 4 wire system is provided with underground service connection... Estimate material requirements. (W24 - OR Q5c, 07 marks)
12. The distance of the big building from the service pole is 30m and the total load of the building is 6.0 Kw... Prepare the estimate of the material required for the service line and cost of the connection. (SUM25 - OR Q5c, 07 marks)

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