ESTIMATE OF FOREST CHOWKI

(Total Area = 2016 sq. ft. + Court Yard 487 sq. feet)

1. C/C length of walls in Chowki
   = 41.25 x 4 + 47.25 x 2 + 15.5 x 1 running feet
   = 275 running feet
   = 83.82 running meter

2. C/C length of court yard walls
   = 13.5 x 2 + 31.5 x 1 running feet
   = 58.5 running feet
   = 17.83 running meter

3. No. of columns in chowki
   = 20

4. No. of columns in courtyard
   = 4

5. Size of each column
   = 9 inches x 9 inches

6. Plinth
   = 0.5 meter above ground level

7. Beam at plinth level
   = 9 inches x 9 inches

8. Beam at door level
   = 9 inches x 6 inches

9. Beam at roof level
   = 9 inches x 9 inches

10. Thickness of slab
    = 4 inches

Estimate of different works

1. Excavation:
   (i) For columns
       = (20 + 4) x 1.0 x 1.0 x 1.2 meter
       = 28.800 cubic meter

   (ii) For walls
        = [ (83.82 + 17.83) - 61 x 0.5] x 0.3 x 0.5
        = 10.672 cubic meter

   (iii) Total excavation
         = 39.472 cubic meter
2. **Filling foundation with 1:3:6 (M-10) cement concrete:**
   (i) For columns \( = (20 + 4) \times 1.0 \times 1.0 \times 0.1 \)
       \( = 2.4 \) cubic meter
   (ii) For walls \( = (83.82 + 17.83) \times 0.3 \times 0.1 \)
        \( = 3.049 \) cubic meter
   (iii) For flooring in rooms \( = 14.63 \times 12.80 \times 0.1 \)
        \( = 18.726 \) cubic meter
   (iv) Total CC \( = 24.175 \) cubic meter

3. **R.C.C. work in 1:1.5:3 (M-20) in columns, beams, chajjas & slab:**
   (i) Columns footing \( = 24 \times (1 \times 1 + 0.22 \times 0.22) / 2 \times 0.3 \)
       \( = 3.774 \) cubic meter
   (ii) Columns up to plinth level \( = 24 \times 1.2 \times 0.22 \times 0.22 \)
        \( = 1.394 \) cubic meter
   (iii) Column up to roof level \( = 20 \times 0.22 \times 0.22 \times 3.1 \)
        \( = 3.00 \) cubic meter
   (iv) Column in court yard \( = 4 \times 0.22 \times 0.22 \times 1.8 \)
        \( = 0.348 \) cubic meter
   (v) Beam at plinth level \( = (83.82 + 17.83) \times 0.22 \times 0.22 \)
       \( = 4.914 \) cubic meter
   (vi) Beam at door level \( = 83.82 \times 0.22 \times 0.15 \)
        \( = 2.766 \) cubic meter
   (vii) Beam at roof level \( = 83.82 \times 0.22 \times 0.22 \)
        \( = 4.056 \) cubic meter
   (viii) Chajjas \( = 10 \times 0.6 \times 1.5 \times 0.1 \)
        \( = 0.90 \) cubic meter
   (ix) Slab \( = (14.63 \times 12.80) \times 0.1 \)
       \( = 18.726 \) cubic meter
   (x) Total RCC \( = 39.878 \) cubic meter
4. Steel required in RCC = 1.50 % of volume of RCC
   = 4695 kg

5. Masonary in foundation/plinth = (83.82 + 17.83) x 0.22 x 0.9
   = 20.127 cubic meter

6. Masonary in superstructure:
   (i) In main building = 83.82 x 0.22 x 2.85
     = 52.555 cubic meter
   (ii) In courtyard = 17.83 x 0.22 x 1.8
      = 7.061 cubic meter
   (iii) Deduction for doors/windows = (4 x 1.07 x 2.1 + 8 x 0.838 x 2.1 +
                                  9 x 1.5 x 1.35 + 1 x 1.2 x 1.35 +
                                  3 x 0.6 x 0.45 ) x 0.22
        = 9.619 cubic meter
   (iv) Total Masonary = 49.997 cubic meter

7. Plaster in 1:6 cement mortar
   (i) In main building = 2 x 83.82 x 3.0
     = 502.92 square meter
   (ii) In courtyard = 2 x 17.83 x 1.8
      = 64.188 square meter
   (iii) In roof = 12.80 x 14.63
            = 187.264 square meter
   (iv) Deduction for doors/windows = 2 x (4 x 1.07 x 2.1 + 8 x 0.838 x 2.1 +
                                      9 x 1.5 x 1.35 + 1 x 1.2 x 1.35 +
                                      3 x 0.6 x 0.45 )
     = 87.445 square meter
   (vi) Total plaster = 479.663 square meter
8. Centering and shuttering:

(i) For Columns in main building
    \[= 20 \times 4 \times 0.22 \times 4.6\]
    \[= 80.96 \text{ square meter}\]

(ii) For columns in courtyard
    \[= 4 \times 4 \times 0.22 \times 3.3\]
    \[= 11.616 \text{ square meter}\]

(iii) For beam at plinth level
    \[= (83.82 + 17.83) \times 0.3\]
    \[= 30.495 \text{ square meter}\]

(iv) For beam at door level
    \[= 83.82 \times 0.525\]
    \[= 44.005 \text{ square meter}\]

(iv) For beam at roof level
    \[= 83.82 \times 0.66\]
    \[= 55.321 \text{ square meter}\]

(v) For chajjas
    \[= 10 \times 0.6 \times 1.5\]
    \[= 9.00 \text{ square meter}\]

(vi) For slab
    \[= 14.63 \times 12.80\]
    \[= 187.264 \text{ square meter}\]

(vii) Total shuttering
    \[= 418.661 \text{ square meter}\]

9. Filling foundation with moorum
    \[= 14.63 \times 12.80 \times 0.5\]
    \[= 93.632 \text{ cubic meter}\]

10. Wood required for frames
    \[= 0.0635 \times 0.127 \times (4 \times 5.334 + 8 \times 5.105 + 9 \times 8.534 + 1 \times 5.4 + 6 \times 2.1)\]
    \[= 1.266 \text{ cubic meter}\]

11. Frame work for doors/window
    \[= (4 \times 1.07 \times 2.1 + 8 \times 0.838 \times 2.1 + 9 \times 1.5 \times 1.35 + 1 \times 1.2 \times 1.35 + 3 \times 0.6 \times 0.45)\]
    \[= 43.722 \text{ square meter}\]

12. Flooring
    \[= 14.63 \times 12.80\]
    \[= 187.264 \text{ square meter}\]