| U.S.N. | | | | | | | | | | |
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# B.M.S. College of Engineering, Bengaluru-560019

**Autonomous Institute Affiliated to VTU**

## January 2024 Semester End Main Examinations

**Programme: B.E.** **Semester: VII**
**Branch: Civil Engineering** **Duration: 3 hrs.**
**Course Code: 21CV7PCCSE** **Max Marks: 100**
**Course: Contracts, Specification and Estimation**

**Instructions**: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

**Important Note:** Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

| | | | UNIT - I | *CO* | *PO* | Marks |
|---|---|---|---|---|---|---|
| 1 | a) | | Discuss the requirement of estimation and costing. | *CO1* | *PO1* | **06** |
| | b) | | Explain detailed estimation and discuss the factors to be considered while preparing detailed estimate. | *CO1* | *PO1* | **06** |
| | c) | | Prepare a rough-cost estimate of a residential building project with a total plinth area of the building - 150 Sqm. Given that:<br>Plinth Area Rate = ₹ 15,000.00 / Sqm<br>Extra for special architectural treatment = 2%<br>Extra for water supply and sanitary installations = 10%<br>Extra for internal installations = 10%<br>Extra for Electric & gas services = 10%<br>Contingencies 3%<br>Supervision charges = 8%<br>Design charges = 2.5% | *CO1* | *PO2* | **08** |
| | | | **UNIT - II** | | | |
| 2 | | | The accompanying **Figure-1** shows the details of a residential building. Estimate the quantities by centre line method and cost of the following items of works.<br>a) Centreline length<br>b) Earthwork excavation for foundation in hard soil at a rate of Rs. 500.00/Cum<br>c) Size stone masonry in footings and plinth with CM 1:8 at a rate of Rs. 4500.00/Cum<br>d) I class brick work in superstructure in CM (1:4) at a rate of Rs. 7000.00/Cum | *CO1* | *PO3* | **02**<br>**04**<br>**06**<br>**08** |
| | | | **OR** | | | |
| 3 | | | Estimate the quantities of all the items of work for the septic tank shown in the **Figure-2.** | *CO1* | *PO3* | **20** |

<table>
<tr><td></td><td></td><td></td><td>UNIT - III</td><td></td><td></td><td></td></tr>
<tr><td></td><td>4</td><td>a)</td><td>List various methods of earthwork estimation. Discuss the Prismodal formula method with tabular column.</td><td>CO2</td><td>PO1</td><td>08</td></tr>
<tr><td></td><td></td><td>b)</td><td>Estimate the cost of earthwork for a portion of the road from the following data. The formation width of the road is 10m. Side slopes are 2:1 in filling and 1.5:1 in cutting. Compute volume by Mean Area method.<br><br>
<table>
<tr><td>Distance</td><td>500</td><td>530</td><td>560</td><td>590</td><td>620</td><td>650</td><td>680</td><td>710</td></tr>
<tr><td>G. L.</td><td>557.4</td><td>557.0</td><td>556.8</td><td>556.3</td><td>555.9</td><td>556.2</td><td>556.8</td><td>557.5</td></tr>
<tr><td>F. L.</td><td colspan="7">← Upgradient of 1 in 100 →</td><td>558</td></tr>
</table>
</td><td>CO2</td><td>PO3</td><td>12</td></tr>
<tr><td></td><td></td><td></td><td>UNIT - IV</td><td></td><td></td><td></td></tr>
<tr><td></td><td>5</td><td>a)</td><td>Discuss detailed specifications required for cement plastering in CM 1:6.</td><td>CO4</td><td>PO2</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>Workout from first principles, the rate analysis for Random Rubble Stone Masonry in cement mortar 1:6. Consider rate of cement – Rs. 400.00/bag and sand – Rs. 1500.00/cum.</td><td>CO4</td><td>PO2</td><td>10</td></tr>
<tr><td></td><td></td><td></td><td>OR</td><td></td><td></td><td></td></tr>
<tr><td></td><td>6</td><td>a)</td><td>Discuss detailed specifications required for 25mm thick Cement Concrete floor.</td><td>CO4</td><td>PO2</td><td>10</td></tr>
<tr><td></td><td></td><td>b)</td><td>Workout from first principles, the rate analysis for Burnt Brick Masonry in cement mortar 1:4. Consider rate of cement – Rs. 400.00/bag, sand – Rs. 1500.00/cum and brick – Rs. 8.00/piece.</td><td>CO4</td><td>PO2</td><td>10</td></tr>
<tr><td></td><td></td><td></td><td>UNIT - V</td><td></td><td></td><td></td></tr>
<tr><td></td><td>7</td><td>a)</td><td>Define Contract and discuss the objectives of contract.</td><td>CO4</td><td>PO1</td><td>06</td></tr>
<tr><td></td><td></td><td>b)</td><td>Discuss various dispute resolution methods.</td><td>CO4</td><td>PO1</td><td>08</td></tr>
<tr><td></td><td></td><td>c)</td><td>Discuss the importance of accurately preparing tender documents.</td><td>CO4</td><td>PO2</td><td>06</td></tr>
</table>

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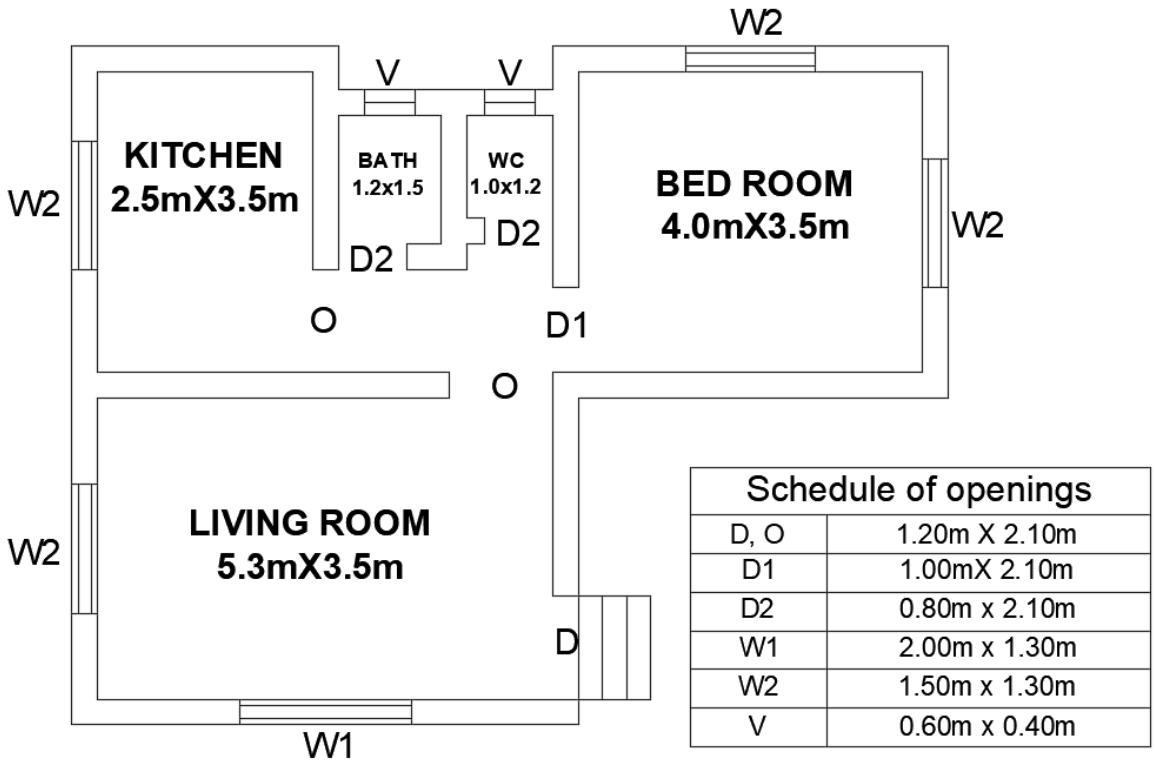
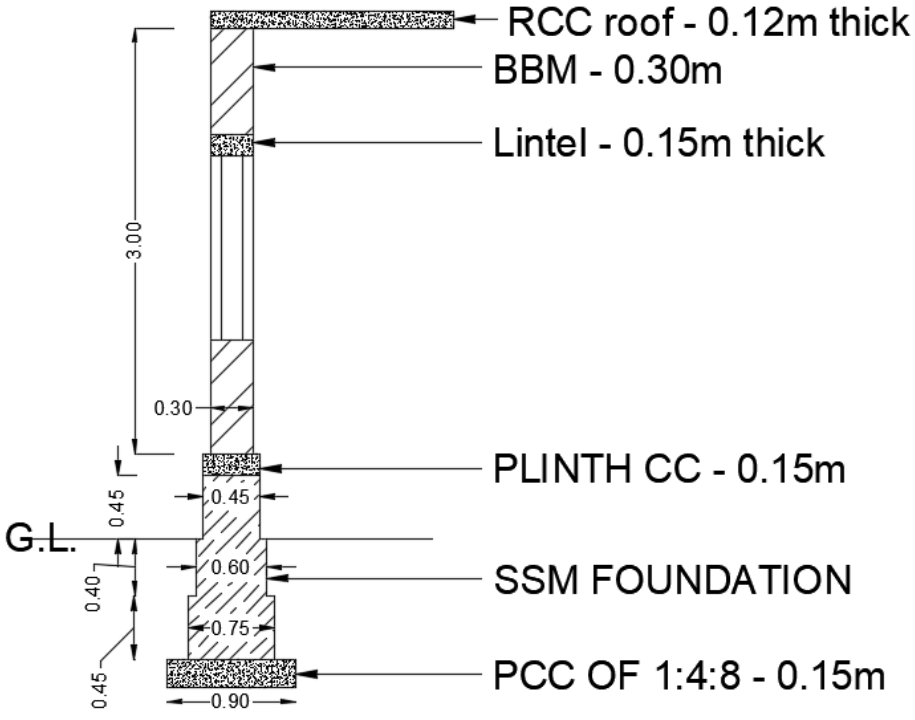
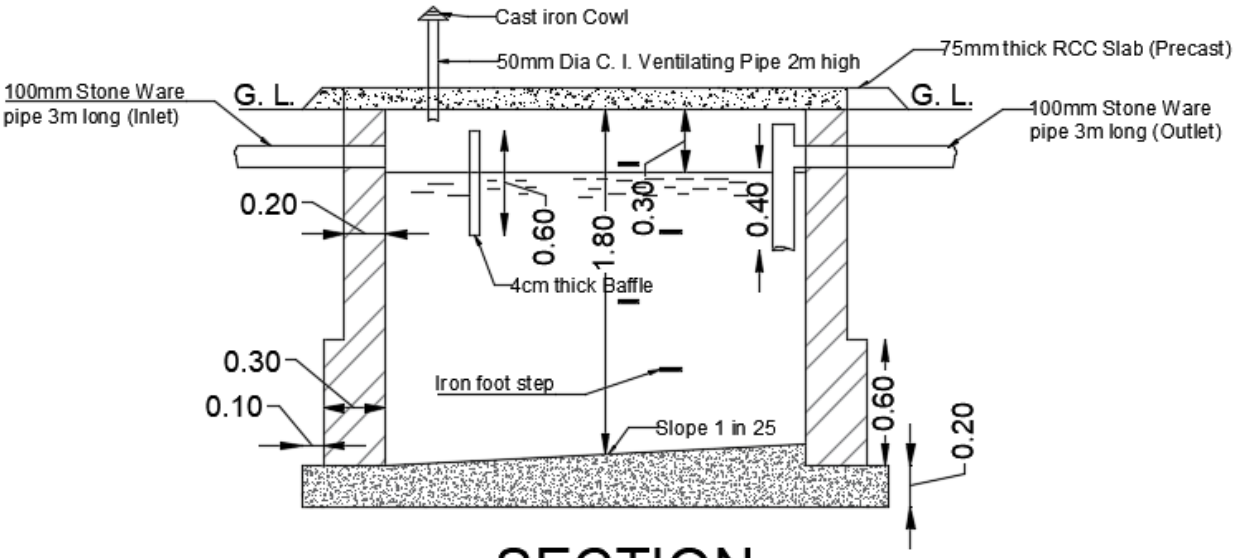



| Schedule of openings | |
|---|---|
| D, O | 1.20m X 2.10m |
| D1 | 1.00mX 2.10m |
| D2 | 0.80m x 2.10m |
| W1 | 2.00m x 1.30m |
| W2 | 1.50m x 1.30m |
| V | 0.60m x 0.40m |

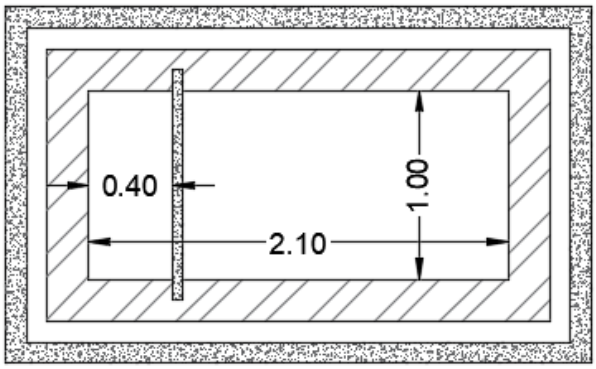



CROSS SECTION OF WALLS

**Figure – 1**




SECTION




PLAN

**Figure – 2**

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