**PVP 20**

Code: 20CE3602

**III B.Tech - II Semester – Regular Examinations – JUNE 2023**

# ESTIMATION AND COSTING
## (CIVIL ENGINEERING)

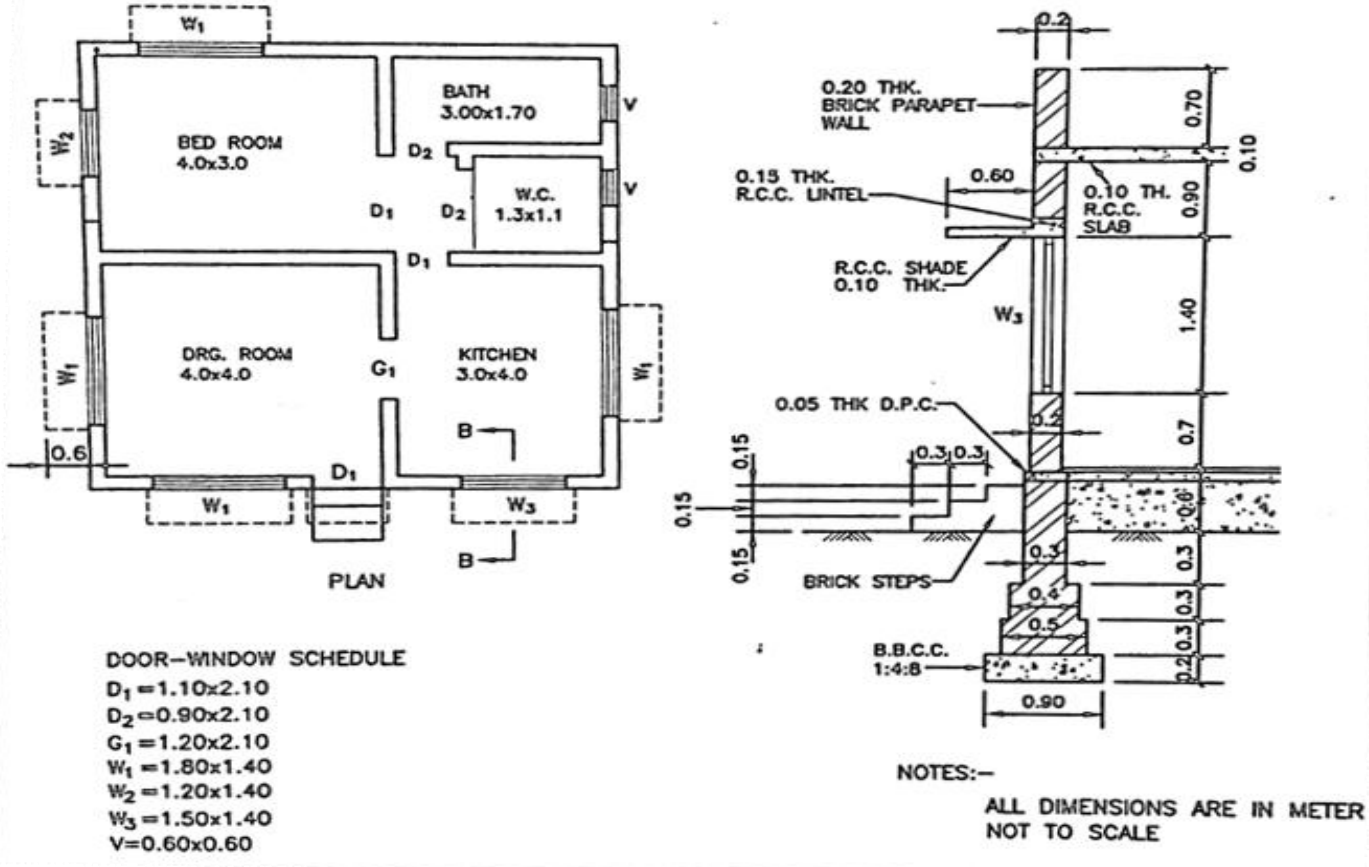
Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

| | | | BL | CO | Max. Marks |
|---|---|---|---|---|---|
| | | **UNIT-I** | | | |
| 1 | a) | Explain methods to be considered while preparing detailed estimate. | L2 | CO1 | 7 M |
| | b) | Estimate the quantities of 30mm width of brickwork and 10mm plastering work for a room size of 4mx6mx3m. | L2 | CO1 | 7 M |
| | | **OR** | | | |
| 2 | a) | Explain the basic components required to prepare detailed specifications of earthwork in excavation in foundations. | L2 | CO1 | 7 M |
| | b) | Explain the following general items of work involved in the estimation for a building along with the process of calculations.<br>i. Earthwork in excavation.<br>ii. Cement concrete in foundation.<br>iii. Masonry work in foundation.<br>iv. Damp proof course. | L2 | CO1 | 7 M |

| UNIT-II | | | | | |
|---|---|---|---|---|---|
| 3 | a) | Estimate in detail the quantities of following items of work for a given plan as shown in below fig. using centre line method.<br>i) Concrete in foundation<br>ii) Brickwork in step foundation | L2 | CO2 | 7 M |




| | b) | Prepare quantity estimate for the following items for the following figure<br>(i) Earthwork in excavation in foundation.<br>(ii) Lime concrete in foundation.<br>(iii) Brick work (1:4) for footings excluding plinth footing. | L3 | CO2 | 7 M |
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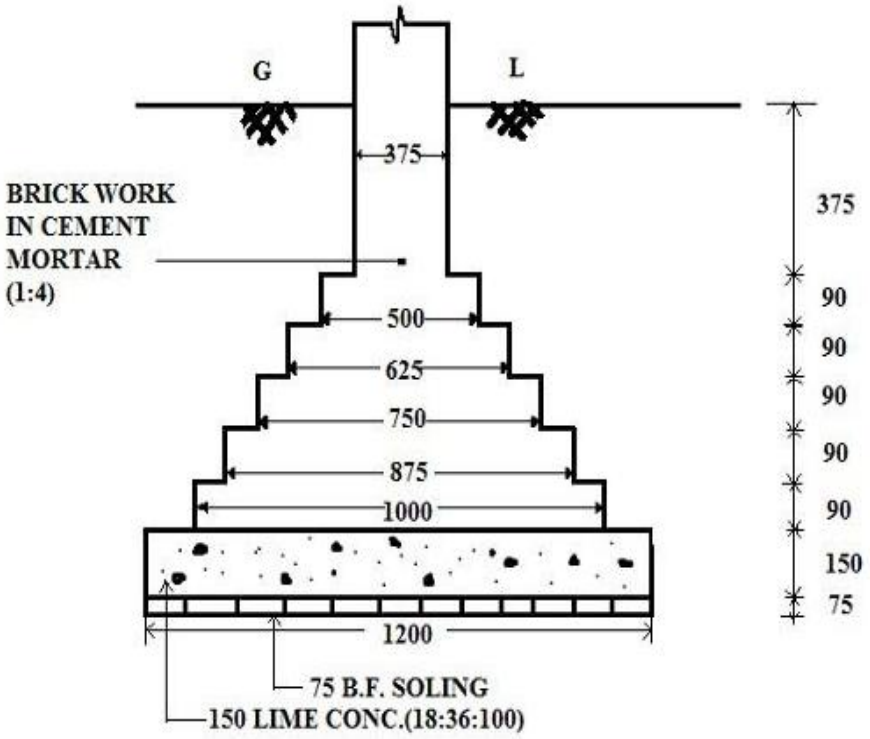
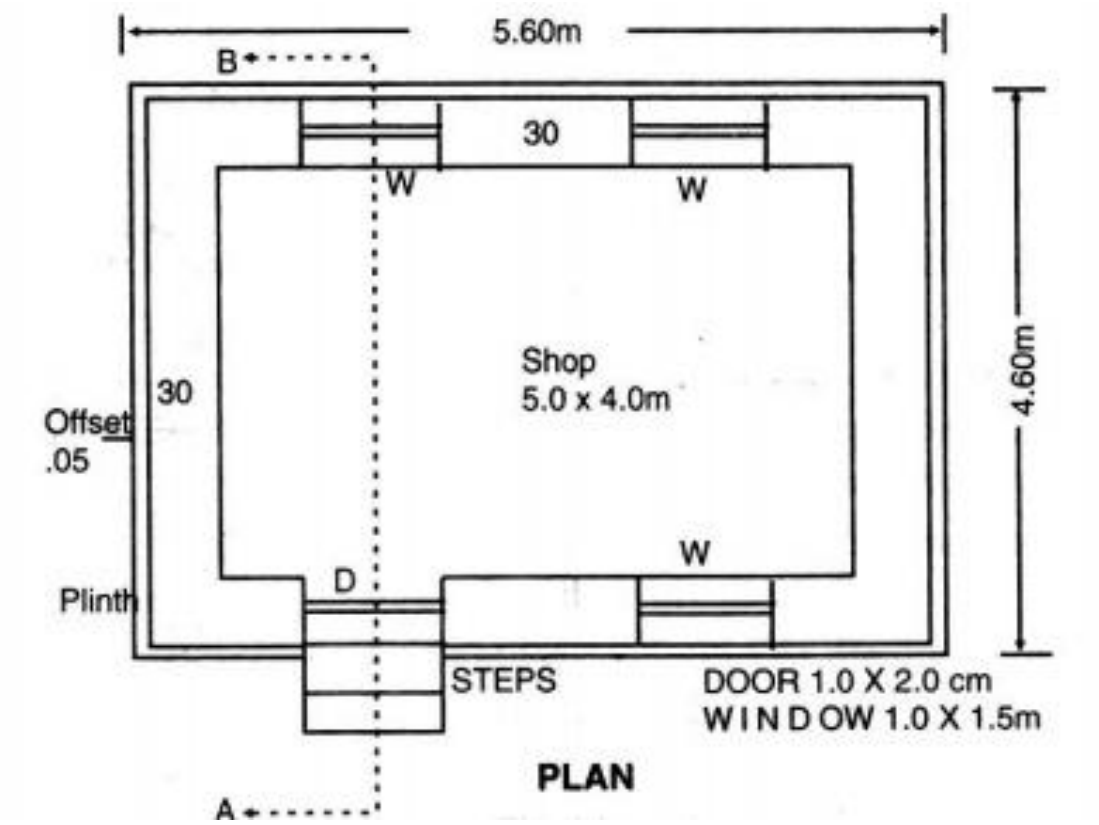
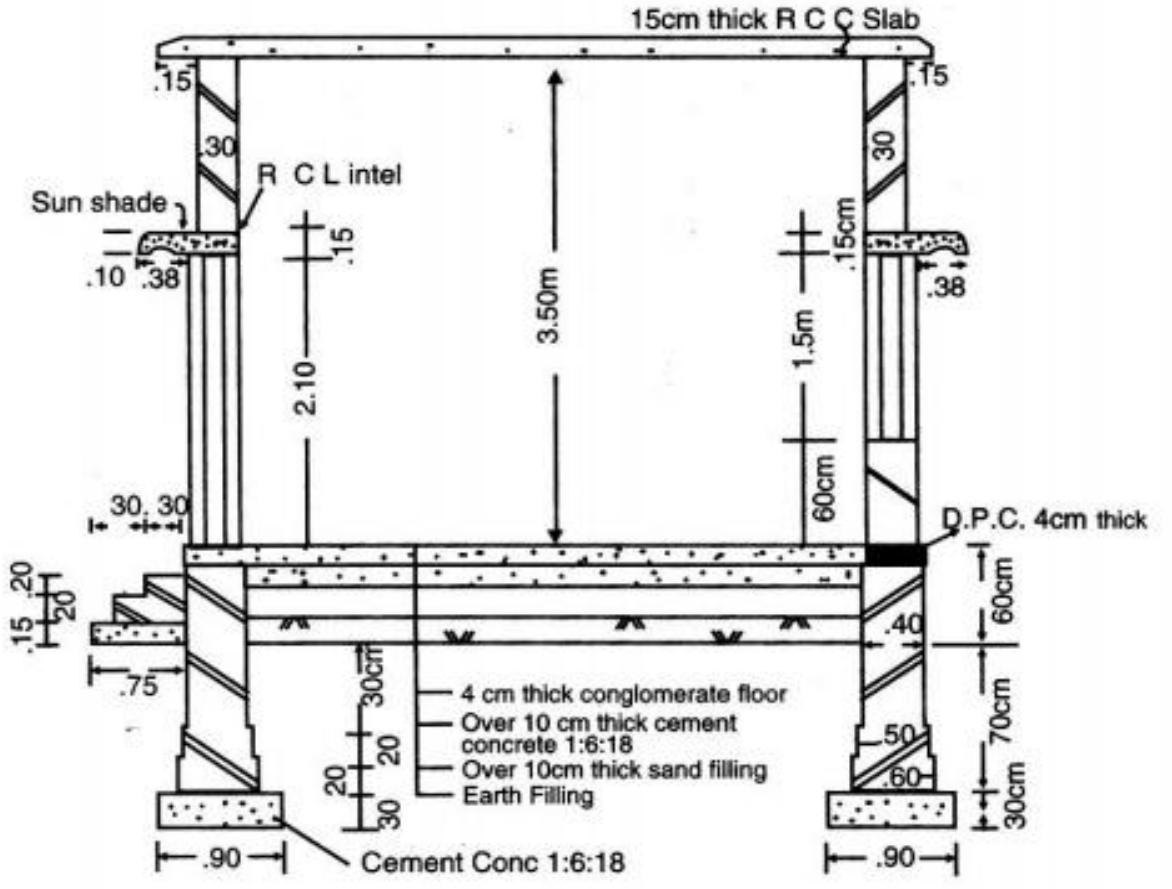
| | |  | | | |
| **OR** | | | | | |
| 4 | a) | Differentiate between centre line method and long wall & short wall method. | L2 | CO2 | 7 M |
| | b) | Estimate the earthwork in excavation, PCC in foundation and brickwork in foundation for the building plan as shown below. Assume required data if required. | L2 | CO2 | 7 M |



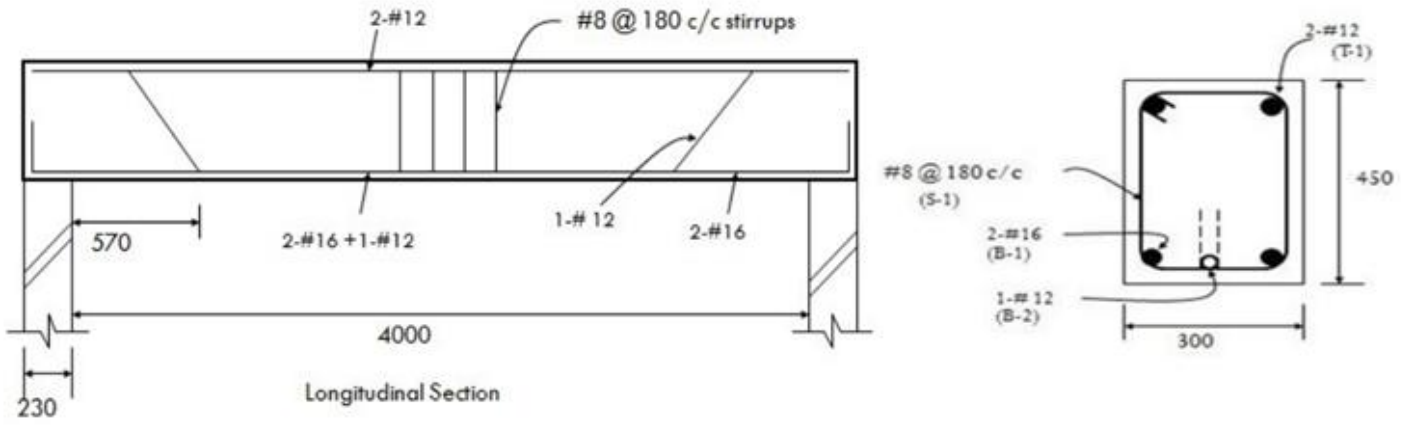

**PLAN**

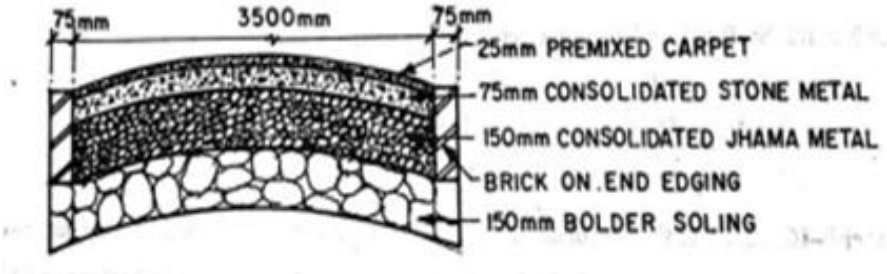



**SECTION ON AB**

| UNIT-III | | | | | |
|---|---|---|---|---|---|
| 5 | a) | Being a contractor, how important is the rate analysis for your firm, explain the components to be considered. | L2 | CO3 | 7 M |
| | b) | Prepare a bar bending schedule for a RCC beam of 4000mm clear span, 300mm width and 450mm depth. It consists of 2-12mm dia hanger bars, 2 – 16mm dia main longitudinal and 1 – 12mm dia bent up bar at the bottom as shown in Fig. Stirrups 8mm dia at a spacing of 180mm c/c are provided though out the length of the beam. The clear cover to the reinforcement is 40 mm. | L3 | CO3 | 7 M |

**Fig.**



| | | | | | |
|---|---|---|---|---|---|
| | | **OR** | | | |
| 6 | a) | Sketch any three shapes of steel bar reinforcement and calculate the bar cutting length. | L3 | CO3 | 7 M |
| | b) | Explain rate analysis for cement concrete. | L2 | CO3 | 7 M |
| | | **UNIT-IV** | | | |
| 7 | a) | Define (i) Book Value (ii) Market Value iii) Srcap value iv) Salvage Value. | L1 | CO4 | 7 M |
| | b) | Explain the basic principles of valuation. | L2 | CO4 | 7 M |
| | | **OR** | | | |
| 8 | a) | Describe about types of contracts. | L2 | CO4 | 7 M |
| | b) | Explain the reasons for termination of contract. Mention types of termination. | L2 | CO4 | 7 M |
| | | **UNIT-V** | | | |
| 9 | a) | The road is 5km and cross section is shown in figure. Calculate the quantity of (i) boulder used for soiling (ii) Bricks used in edging (iii) Overburnt brick metal (50mm to 65mm size) used in bottom layer of base course consolidated thickness 150mm (iv) Trap stone metal (25mm to 40mm size) used in top layer of base course.   | L3 | CO5 | 7 M |
| | b) | Explain points to be considered in preparation of a report. | L2 | CO5 | 7 M |
| | | **OR** | | | |

<table>
<tr>
<td>10</td>
<td>Estimate the cost of earthwork for a portion of road of 400m from the following data. Formation width of the road is 10m. The side slopes are 2:1 in banking and 1.5:1 in cutting.
<table>
<tr><th>Station</th><th>Distance in meter</th><th>R.L of Ground in meter</th><th>R.L of formation in meter</th></tr>
<tr><td>25</td><td>1000</td><td>51.0</td><td>52.00</td></tr>
<tr><td>26</td><td>1040</td><td>50.90</td><td rowspan="11">Downward gradient of 1 in 200</td></tr>
<tr><td>27</td><td>1080</td><td>50.50</td></tr>
<tr><td>28</td><td>1120</td><td>50.80</td></tr>
<tr><td>29</td><td>1160</td><td>50.60</td></tr>
<tr><td>30</td><td>1200</td><td>50.70</td></tr>
<tr><td>31</td><td>1240</td><td>51.20</td></tr>
<tr><td>32</td><td>1280</td><td>51.40</td></tr>
<tr><td>33</td><td>1320</td><td>51.30</td></tr>
<tr><td>34</td><td>1360</td><td>51.00</td></tr>
<tr><td>35</td><td>1400</td><td>50.60</td></tr>
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</td>
<td>L2</td>
<td>CO5</td>
<td>14 M</td>
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