

2023

ESTIMATION AND COSTING*Full Marks : 100*

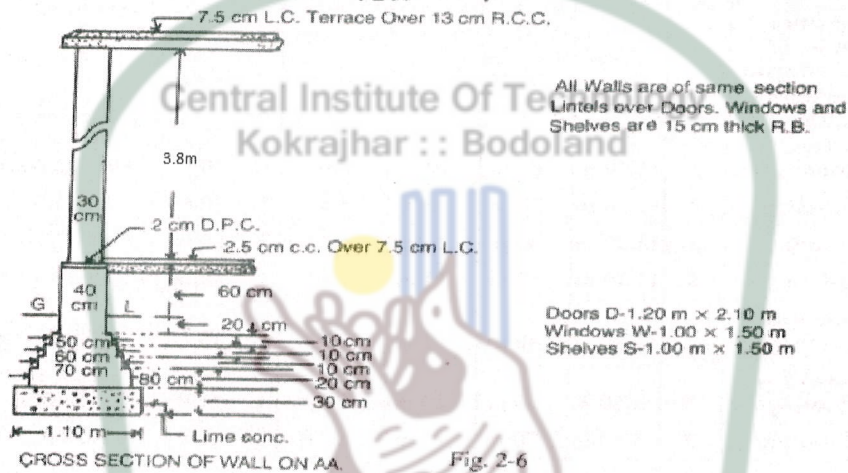
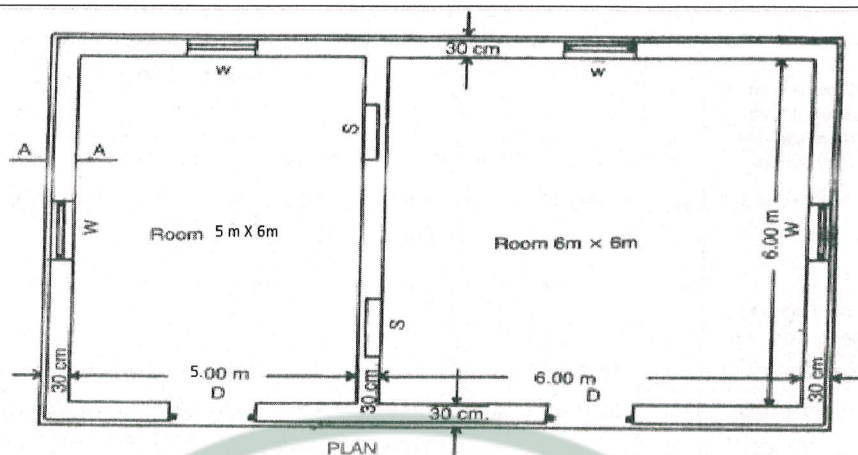
Time : Three hours

*The figures in the margin indicate full marks for the questions.**Answer all five questions.*

Central Institute Of Technology

1.	<p>Prepare an estimate for the portion of a road from chainage 14 to 22 from the data given below. Draw also the longitudinal and typical cross sections for cutting and banking. The rate of earthwork in cutting is Rs. 8.50 per cum and embankment is Rs. 7.50 per cum. The formation width of the proposed road is 12 m, side slopes 1.5:1 in cutting and 2:1 in basking.</p> <table border="1"> <tbody> <tr> <td>Chainage (30 m)</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> </tr> <tr> <td>RL of GL</td> <td>108.6</td> <td>109.25</td> <td>109.4</td> <td>108.85</td> <td>108.5</td> <td>107.25</td> <td>106.8</td> <td>107.15</td> <td>107.2</td> </tr> </tbody> </table> <p>The road formation is proposed at uniform falling gradient 1 in 200. RL of formation at 14th chainage is 108.6. Length of one chain = 30 m.</p>	Chainage (30 m)	14	15	16	17	18	19	20	21	22	RL of GL	108.6	109.25	109.4	108.85	108.5	107.25	106.8	107.15	107.2	20
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RL of GL	108.6	109.25	109.4	108.85	108.5	107.25	106.8	107.15	107.2													
2.	<p>a. Analyse the rate of 2.5 cm thick cement concrete 1:2:4 damp proof course (DPC), unit 1 sqm, take 100 sqm.</p>	8																				
	<p>b. Define valuation. What are the purposes of valuation? Explain the methods of valuations.</p>	2+5+5=12																				
3.	<p>Prepare the detailed estimate of the masonry water tank of 7mx5m from the given drawing and specification</p> <p><u>Specifications</u></p> <p>Foundation – Lime concrete.</p> <p>Masonry- 1st class brickwork in cement mortar 1:6.</p> <p>Wall finishing- Inside 12 mm cement plastered 1:2 with coarse sand</p> <p style="text-align: center;">Top and outside 12 mm cement plastered 1:4 with local sand</p> <p>Flooring- 5 cm cement concrete 1:1.5: 3 over 20 cm lime concrete with neat cement finishing.</p> <p>Rates</p> <p>i. Earthwork in excavation @ Rs.350 per % cum</p>	20																				

	<p>ii. Lime concrete in foundation and floor @ Rs 220per cum</p> <p>iii. 1st class brickwork in 1:6 cement mortar @ Rs 320 per cum</p> <p>iv. 12mm cement plaster 1:2 with coarse sand @ Rs 8.50 per sqm</p> <p>v. 12mm cement plaster 1:4 with local sand @ Rs 8 per sqm</p> <p>vi. 5mm cement concrete 1:1.5:3 floor @ Rs 55 per sqm</p> <div data-bbox="411 533 1161 801" style="text-align: center;"> </div>	
4	<p>Prepare a detailed estimate from the following items of a two roomed building by centre line method from the given drawing (Rates are given in bracket)</p> <p>(a) Earthwork in excavation in foundation. (350 per %cum)</p> <p>(b) Lime concrete in foundation. (220 per cum)</p> <p>(c) 1st class brickwork in cement mortar 1:6 in foundation and plinth. (300 per cum)</p> <p>(d) 2.5cm cement concrete damp proof course. (20 per sqm)</p> <p>(e) 1st class brickwork in lime mortar in superstructure. (320 per cum)</p>	20



5.	<p>a Analyse the rate of 20mm cement plastering 1:6 with coarse sand , unit 1 sqm, take 100 sqm</p>	6
	<p>b Prepare a preliminary estimate for a framed four storied office building having a carpet area of 275 sqm for each floor. Assume areas occupied by corridors, verandah, lavatories, staircases etc. as 26 % of built up area and area occupied by walls and columns as 14 % of the same. Given</p> <p>Built up area for ground floor (excluding foundation) = 1500 per sqm Built up area rate for 1st floor = 1650 per sqm Built up area rate for 2nd and 3rd floor = 1800 per sqm Extra for foundation = 15% of superstructure cost. Extra for special structural treatment= 2% of building cost Extra for water supply and sanitary = 8% of building cost Extra for electrical installation = 7% of building cost Extra for contingencies = 3% of overall cost Extra for work charged establishment = 10% of overall cost Extra for other sources = 4% of building cost.</p>	12