ADVANCED LEVEL NATIONAL EXAMINATIONS, 2016,
TECHNICAL AND PROFESSIONAL STUDIES

EXAM TITLE: Cost Estimation
OPTION: Construction (CST)
DURATION: 3 hours

INSTRUCTIONS:

The paper is composed of three (3) main Sections as follows:

Section I: Thirteen (13) compulsory questions. 55 marks
Section II: Attempt any three (3) out of five questions. 30 marks
Section III: Attempt any one (1) out of three questions. 15 marks

Note:
Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.
Section I. Thirteen (13) Compulsory questions 55marks

01. How do you define an estimate of a construction project? 3marks

02. List out three types of data required to prepare an estimate. 3marks

03. Name and explain three items of work which requires cost estimation. 3marks

04. Estimate the quantity of brickwork and plastering required in a wall of 4m long, 3m high and 20m thick. Calculate also the cost if the rate of brickwork is 70,000 FRW per m³ and plastering is 1,800 FRW per m². 5marks

05. What do you understand by schedule of reinforcement in estimating and costing? Discuss the key elements which are enclosed in the schedule of reinforcement. 4marks

06. Explain briefly how to conduct a cost estimation of sanitary works. 6marks

07. By means of neat sketches and related equations, state and explain three methods used for quantity estimation of earthworks. 6marks

08. After differentiating the cost to the value, discuss five purposes of valuation. 6marks

09. Outline two types of construction contracts by the method of pricing. 4marks

10. Discuss four forms of Cost-type construction contracts. 6marks

11. List out three documents which are enclosed in the construction contract. 3marks

12. By using examples, differentiate original works and repair works in estimating and costing. 3marks

13. Differentiate the contract to a tender. 3marks

Section II. Choose and answer any three (3) questions. 30marks

14. Briefly explain the two general factors affecting the tender price. 10marks

15. Many people think that only cost of land, materials and labors are included in an estimate. With a comprehensible diagram show all parameters with their sub-divisions included in the complete estimate. 10marks
Complete the table below:

<table>
<thead>
<tr>
<th>S/N</th>
<th>Particular items</th>
<th>Unit of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earth work</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Concrete</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Damp Proof Course (D.P.C)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Brick work</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Stone Work</td>
<td></td>
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<tr>
<td>6</td>
<td>Plastering</td>
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<tr>
<td>7</td>
<td>Flooring</td>
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</tr>
<tr>
<td>8</td>
<td>Hand railing</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Rain water pipe</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Glass panels</td>
<td></td>
</tr>
</tbody>
</table>

Overhead costs include the miscellaneous indirect and other costs which are not productive expenses on the job. Provide ten different types of overhead costs.

Prepare a preliminary estimate of a building having area equal to 1600m².

Given that:

i. Plinth area rate = 240,000 FRW
ii. Extra for Architectural work = 1.5% of the building cost
iii. Extra for electricity installation (10%) + water supply and sanitary installations (6%) = 10 + 6 = 16% of the building cost
iv. Extra for other services = 8% of the building cost
v. Contingencies and supervision charges = 10%