ADVANCED LEVEL NATIONAL EXAMINATIONS, 2013,
TECHNICAL AND PROFESSIONAL TRADES

EXAM TITLE: Construction Surveying and Site Management

OPTION: Construction (CST)

DURATION: 3 hours

INSTRUCTIONS:

The paper contains three (3) parts:

Part I: Seventeen (17) questions, all compulsory; 55 marks

Part II: Five (5) questions, Choose any three (3); 30 marks

Part III: Three (3) questions, Choose any one (1); 15 marks
Part I. All the 17 questions are compulsory. 55marks

01. What is surveying? 3marks
02. What is the objective of surveying? 3marks
03. Distinguish between a map and a plan. 3marks
04. Give primary classification of survey. 3marks
05. What are general principles of surveying? 3marks
06. What is shrunk scale? 3marks
07. What are different activities of a surveyor? 3marks
08. What is chain survey? 3marks
09. What is a well-conditioned triangle? 3marks
10. Name 5 devices that may be employed in taking linear measurements. 3marks
11. Name the classification of survey based on the nature of survey field. 3marks
12. What do you understand by the term leveling? 3marks
13. What is the necessity of information given by leveling? 3marks
14. Give the stepwise procedure for the temporary adjustment of a Theodolite. 3marks
15. A plot of land measures 30cm x 60cm on a map drawn to scale 1cm = 50m. What will be the area of the map when placed on a topographical map drawn to a scale of 1cm = 60m? 3marks
16. What does construction worksite organization mean? 5marks
17. What are the temporary facilities in the construction jobsite management? 5marks

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

18. A, B, C and D are points on line AD on a sloping ground. The distances between the points are measured by chain and the corresponding angles of slopes are given below. Calculate the horizontal distances AD. 10marks

<table>
<thead>
<tr>
<th>Line</th>
<th>Length</th>
<th>Angle of slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>75m</td>
<td>5°</td>
</tr>
<tr>
<td>BC</td>
<td>30m</td>
<td>10°</td>
</tr>
<tr>
<td>CD</td>
<td>60m</td>
<td>8°</td>
</tr>
</tbody>
</table>
19. The back sight and fore sight at points C and D are 3.565m and 2.865m respectively. Find the difference of level between C and D. State also if this is fall or rise from C to D.

10 marks

20. Figure 1.1 shows part of an embankment and its dimensions. What is its volume?

10 marks

21. The gradient of a road is 9%. Find the vertical rise/fall if the length of the road is 2450m.

10 marks

22. What is jobsite layout plan?

10 marks

Part III. Choose and answer any one (1) question. 15 marks

23. List the steps of materials procurement process in the construction site management.

15 marks

24. A surveyor, 100m from a building, measures the angle of elevation to the top of a building to be 40° (Figure 2.1). If the height of the instrument is 1.400m and the ground between the surveyor and the building is level, find the height of the building.

15 marks
25. Jane, standing on the 15th floor of a building, looks at her car parked on the nearby road. Find the angle of depression if the other details are as shown in Figure 3.1.  

![Figure 3.1](image-url)