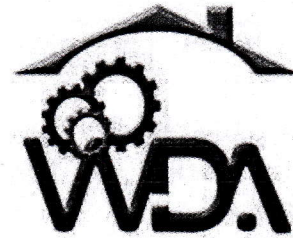


CST – Construction Surveying
and Site Management

T025

Wednesday, 18/11/2015
08:30 – 11:30

WORKFORCE DEVELOPMENT AUTHORITY



P.O. BOX 2707 Kigali, Rwanda Tel: (+250) 255113365

**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2015,
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Construction Surveying and Site Management

OPTION: Construction (CST)

DURATION: 3hours

INSTRUCTIONS:

The paper is composed of **three (3) Sections:**

Section I: Eight **(8)** questions, all **Compulsory.** **55marks**

Section II: Five (5) questions, **Choose Three (3) only.** **30marks**

Section III: Three (3) questions, **Choose only One (1).** **15marks**

Every candidate is required to strictly obey the above instructions. Punishment measures will be applied to anyone who ignores these instructions.

Section I. Eight (8) Compulsory questions. 55marks

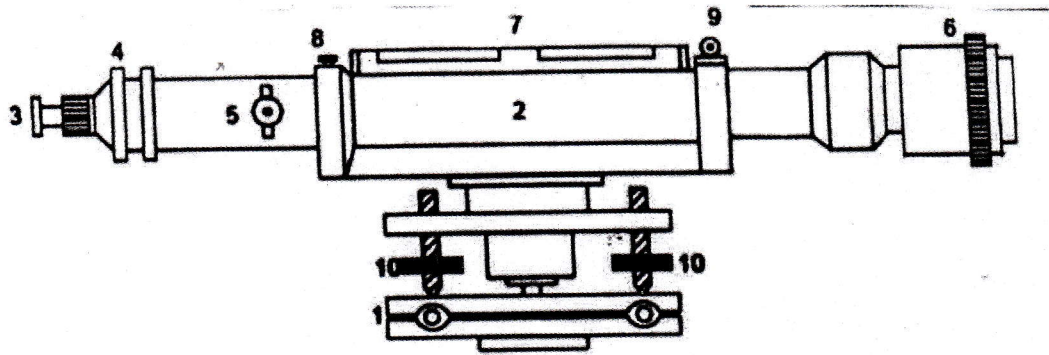
01. Highlight four(4) reasons why site surveys are carried out. **6marks**
02. Give a brief meaning of the following terms used in surveying and site management:
- i. Leveling
 - ii. Staff management
 - iii. Surveying
 - iv. Construction surveying
 - v. Plane surveying
 - vi. Geodetic surveying
 - vii. Setting out
03. What do you understand by the following: **14marks**
- a) Linear measurement
 - b) Reconnaissance
04. Differentiate Chaining from Chain-Surveying. **4marks**
05. a) The work of a surveyor can be divided into three parts, name them. **4marks**
b) Discuss briefly each of the three (3) parts named in question (a). **3marks**
06. State clearly the two main systems of measurements used in surveying works. **6marks**
07. a) Mention the three (3) commonly Possible Errors found when undertaking chaining in surveying. **4marks**
b) Describe briefly, each of the three (3) chaining errors mentioned in (a). **3marks**
08. List five (5) instruments used for chaining in surveying. **6marks**

Section II. Answer any three (3) questions of your choice

(Do not choose more than three questions). 30marks

09. State clearly five(5) factors which can determine the accuracy of the surveying works. **10marks**
10. Highlight clearly five(5) purposes of carrying out reconnaissance on a new site. **10marks**
11. Explain the following terms used while manipulating a transit theodolite:
- a) Centering
 - b) Vertical Axis
 - c) Axis of the Telescope
 - d) Changing Face
 - e) Line of Collimation
- 10marks**

12. Identify the ten(10) parts of the dumpy level below:



10marks

13. The leveling shown in the figure & table 5(b) below was reobserved from a second instrument station. The observations were as follows:

- A) 0.240 B) 3.450 C) 0.655
 D) 0.650 E) 2.290 F) 1.955

Enter these results in a leveling table, then calculate and check the reduced levels of the stations from the temporary bench mark "A" (reduced level 107.520 m)

Figure 5(b).

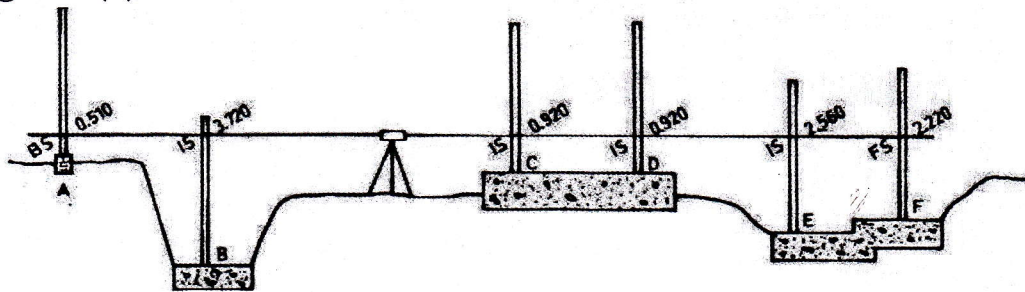


Table 5(b).

BS	IS	FS	Rise	Fall	Reduced level	Distance	Remarks
0.510					107.520		A. (TBM)
	3.720			3.210	104.310		B. Foundation level 1
	0.920		2.800		107.110		C. Foundation level 2
	0.920				107.110		D. Foundation level 2
	2.560			1.640	105.470		E. Foundation level 3
		2.220	0.340		105.810		F. Foundation level 4
0.510		2.220	3.140	4.850	105.810		
	2.220		-4.850		-107.520		
	-1.710		-1.710		-1.710		

10marks

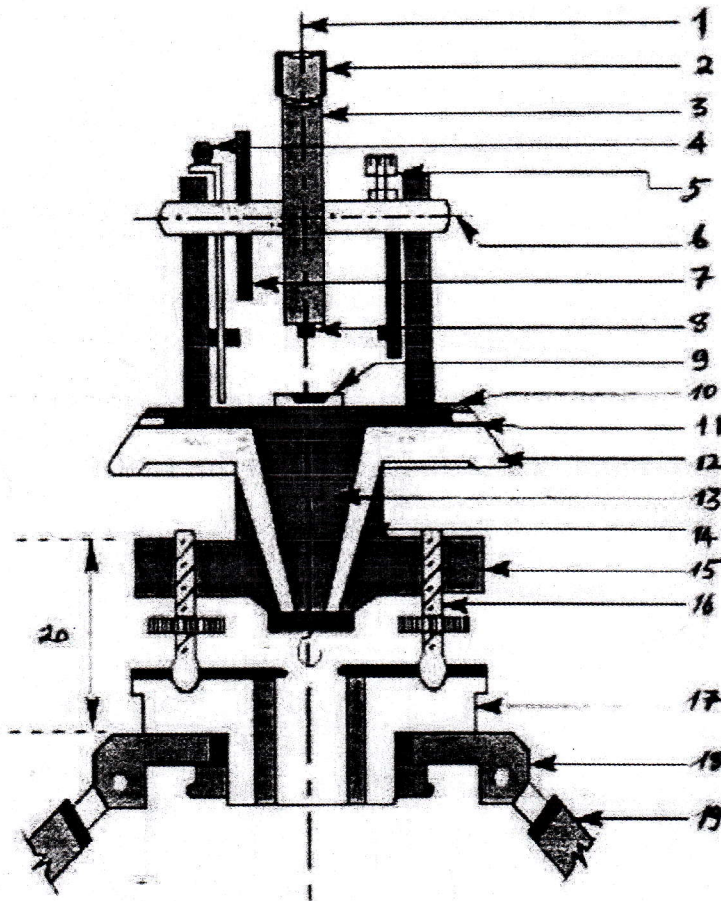
Section III. Answer any one (1) question of your choice

(Do not choose more than one question).

15marks

- 14.** Name atleast 15 parts in the Theodolite below (Use No 1 to 20 in Your Answers).

15marks



- 15.** Highlight ten (10) satisfaction factors that affect positively Construction Workers at a site.

15marks

- 16.** Discuss the main purpose of each of the following building construction team members:

- i. The client
- ii. Architect
- iii. Structural engineer
- iv. Quantity surveyor
- v. Clerk of works
- vi. Main contractor
- vii. General foreman
- viii. Surveyor
- ix. Site agent
- x. Trades people

15marks