Automation in Clinical Laboratories + Revision

A Lead-In

1 Can you describe the usual day in your laboratory?
2 What are the instruments you usually work with? Are they difficult to run?
3 What do you think is the most difficult part of a laboratory technician's workday?

B Vocabulary Warm-up. Match the words on the left with those on the right.

1 fully-automated **laboratory**	a biohazards
2 state-of-the-art **instruments**	b a test
3 process **samples**	c the barcode
4 improve **efficiency**	d laboratory
5 transport via **a tube system**	e a tube system
6 to be exposed to **biohazards**	f efficiency
7 to read **the barcode**	g control
8 turn-around **time**	h instruments
9 quality **control**	I samples
10 perform **a test**	k time

C Listening

Listen and decide what the following numbers refer to:

6 million **dollar upgrade of the laboratory**
3 **it took 3 years to replace the old technology with the state-of-the-art instruments**
5th **the lab is on the 5th floor of the St Francis Hospital and Medical Centre**
4200 **the space of the laboratory is 4 200 square feet**
1200 **the lab can process up to 1 200 patients' samples an hour**
5 million **the technologists perform about 5 million tests yearly**

Quality Control in the Laboratory Worksheet

A Vocabulary Warm-up Word Formation

Make nouns using these suffixes: -acy; -ing; -ence; -ness; -ion; -ity; -ison

1 precise → **precision**
2 accurate → **accuracy**
3 subdivide → **subdivision**
4 refer → **reference**
5 compare → **comparison**
6 repeat → **repetition**
7 appropriate → **appropriateness**
8 conclude → **conclusion**
9 valid → **validity**
10 stable → **stability**
11 time → **timing**
12 probable → **probability**

B Match the collocations

1 repeat **a**	a) measurements
2 provide **b**	b) information
3 report **c**	c) results on a patient
4 perform **d**	d) QC procedures
5 affect **e**	e) results

C Westgard' Rules

The Westgard rules can be applied **to** (1) see if the results from the samples can be released, or if they need to **be** (2) rerun. The formulation of Westgard rules was based **on** (3) statistical methods. Westgard rules are commonly **used** (4) to analyse data in Shewhart control charts. Westgard rules are used to define specific performance limits for a particular assay and can be used to detect **both** (5) random and systematic errors. Westgard rules **are** (6) programmed into automated analysers to determine when an analytical run should be rejected. **These** (7) rules need to be applied carefully **so** (8) that true errors are detected and false rejections **are** (9) minimized. The rules applied **to** (10) high volume chemistry and haematology instruments should produce low false rejection rates. (http://en.wikipedia.org/wiki/Laboratory_quality_control)

E Grammar Point

A Numerals

8. three hundred and sixty-seven thousand seven hundred and twenty-nine
one hundred and seventy-four thousand five hundred and twenty
one hundred and ninety-three thousand two hundred and nine

Read out in full the correct forms of numerals:

1. There are 11 students on the list, so you are 12th. **eleven, the twelfth**
2. We have 5 samples of frozen material available for analysis; could you get another 6? **five, six**
3. The temperature first rose to 5 °C and then suddenly dropped to -10 °C. **five degrees celcius, minus ten degrees celcius**
4. You first dial 7050 and then ask for extension 92. **seven oh five oh, nine two**
5. Mice were administered tap water at 3h intervals. **at three hour intervals**
6. Today is 6 November 2006. **the sixth of November two thousand and six**
7. The early 70s saw the boom of the Beatles. **seventies**
8. The population of Brno is now 367 729 inhabitants, of which 174 520 are men, 193 209 women.
9. Hippocrates, known as the Father of Medicine, lived in the years 460 – 377 B.C. **four sixty to three seventy-seven**
10. Please wake me at 05:45 a.m. **five forty-five/ a quarter to six**

(Dastych, M. – English for Lab.techs.)

E Grammar Point – Revision

Tenses – Use your own ideas to complete the sentences.

1 A: How did the accident happen? B: I **was driving** too fast and couldn't stop in time.
2 A: Is that a new microscope? B: No, we **have had** it a long time.
3 A: Is that a new computer? B: Yes, I **bought it** a few weeks ago.
4 A: This is a nice restaurant. Do you come here often? B: No, it's the first time **I have been** here.
5 A: I can't talk to you right now. You can see I'm very busy. B: OK. I **will be** back in 20 minutes.

Relative clauses

1 The microscope is broken. I was using it yesterday. – The microscope **-/which/that I was using yest.** is broken.
2 I work in a lab. The lab is going to close. – The lab **-/which/that I work in** is going to close.
3 The doctor showed me the results. I didn't understand the results. – I didn't understand the results **-/which/that the doctor showed** me.
4 You were talking to a person. The person seemed nervous. – You talked to a person **who/that seemed** nervous.

Clauses (if and temporal)

1 Before you **leave** the lab, can you switch off all electrical appliances?
2 I **'ll do** (do) the Gram stain as soon as she **gives** (give) me the counterstain.
3 You've burnt yourself! If you **don't follow** (follow) the rules, you **will get injured** (get injured).
4 If you **pass** (pass) the written test, you **will be able** (be able) to sit the oral exam.

Articles

1 When **x** unemployment is high, it's difficult for **x** people to find **x** work. It's **a** big problem.
2 There was **an** accident in **the** lab yesterday. Joe tripped over **a** cable, fell down and broke **a** microscope.
3 In **x** microbiology, **x** researchers come with **x** new discoveries every **x** week.
4 **The** human immune system is **a** very complicated structure. For example, for **x** B-cells to work, they have to…
5 **The** job of **x** lab technicians is dangerous – that's why they have to wear **x** protective clothing, such as **x** glasses.