Lesson 3

Routine chemistry analysers

Read the text ignoring the gaps and choose the correct answers below:

Routine chemistry analysers are ____(1) workhorse instruments of the modern chemistry laboratory. Typically, these instruments perform 80 % or more of ____(2) volume of chemistry testing.

____(3) main properties of automated chemistry analysers (ACA):

Availability and cost of instrument interface to the laboratory information system (LIS)

Sampling features: Include primary tube sampling, bar code identification, ability of instruments to accept different tube sizes, clot detection, short sample detection, and immediate interrupt

Throughput: number of samples and test per hour

Menu: test menu and available open channels

Easy to use: Includes training, maintenance, and operation

On-board quality control software

All main-line chemistry analysers offer ___(4) random-access testing; in simple terms, multiple tests can be performed simultaneously and continuously. This contrasts with ___(5) batch-mode instruments that perform single tests on a batch of samples that are loaded on the instrument.

Some analysers are so-called open systems that can use ____ (6) reagents from the instrument manufacturer or from alternative vendors.

Other instruments are ____ (7) closed systems that can use only reagents supplied by ___(8) manufacturer. These systems are often easier to operate and maintain than open systems.

Many instruments have both open and closed channels, allowing ____ (9) some flexibility in the use of reagents.

All automatic chemistry analysers use internal automation and robotics for handling specimens and reagents on ___ (10) analyser.

1 Routine chemistry analysers
a do the most of chemistry testing
b are the most modern instruments in laboratories
c did the most of chemistry testing

2 Instrument interface to the LIS
a makes ACAs very difficult to use in our LIS
b is one of disadvantages of ACA, because it makes them relatively expensive
c is one of advantages of ACA, because it makes them relatively cheap

3 Throughput tells us
a how many samples were tested
b how many samples were tested in a given time period
c how many samples we must test

4 In random-access testing,
a we can only test samples one at a time
b we can test many samples at the same time
c we can test only one sample at a time

5 Open systems are those systems where you can use
a all reagents from one vendor
b all reagents from different vendors
c only reagents from the manufacturer

1 Vocabulary warm-up: Can you match the words on the left with their equivalents?

1 ptroerpy	a detekce nedostatku vzorku
2 itneracfe	b přístroje v dávkovém režimu
3 sgapmlin features	c vlastnost
4 lcot tdeection	d okamžité přerušení
5 hsort msaple tdeection	e charakteristiky dávkování
6 iemmdiate niterurpt	f detekce sraženiny
7 trhoughutp	g průchodnost, výkonnost
8 on-bdaro	h přístroje s náhodným přístupem
9 tbach-mdoe mentsinstru	i rozhraní, propojení
10 rdanom-casces mentsinstru	j v přístroji, „na palubě“

2 These definition went a bit wrong. Can you correct them?

1. **Bichromatic measurement** _____

Is run to detect systematic result errors. (See also pre-control, precision control, and quality control.)

2. **Label** _____

Any substance that stimulates the production of antibodies and combines specifically with corresponding antibodies.

3. **Accuracy control** _____

Calculation of the absorbance at the primary wavelength minus the absorbance of the reference wavelength.

4. **Relative light unit** _____

Consumable components that must be discarded after use, such as matrix cells.

5. **Disposable** _____

A substance coupled to an antigen or antibody that provides the measurement signal for an immunoassay.

6. **Order list monoclonal antibody**_____

Antibody produced through the fusion of a myeloma cell and a B lymphocyte. Antibodies produced by a single fusion event have identical structure, affinity, and specificity for a given antigen.

7. **Antigen** _____

Counts generated when the photomultiplier detects light during the chemiluminescence reaction. Abbreviation: RLU.

8. **Monoclonal antibody order list**_____

The screen or report that displays the list of assays waiting to be run.