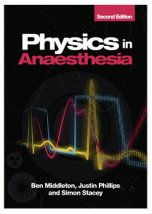
Chapter 28

Physical quantities and SI units



Self-assessment questions

These questions and answers, in both MTF and SBA formats, accompany *Physics in Anaesthesia 2e* and link back to the book for guidance.

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Multiple true / false questions

For each of the following questions, mark all answers as either true or false

1. SI base units include:

a. Frequency (Hz)
b. Force ($kg \cdot m \cdot s^{-2}$)
c. Pressure ($N \cdot m^{-2}$)
d. Electric current (A)
e. Temperature (°C)

Pointer

- See *Tables 28.2* and *28.4.*
- Remember to always convert temperature to kelvin in gas calculations; K = °C + 273.15.

2. Units of pressure can be in:

a. Kilopascals
b. Millimetres of mercury
c. Bar
d. Centimetres of water
e. Pounds per square inch

Pointer

- See *Table 6.1* for the equivalent SI unit values for units of pressure (kPa).
- It is useful to remember the conversions for these measurements, especially kPa to mmHg (1:7.5).
- For example, if you wanted to calculate the dead space fraction (using the Enghoff modification of the Bohr equation) you would need to first convert PCO_2 readings from arterial blood gases from kPa to mmHg.

Single best answer questions

For each of the following questions, select the single best answer – note that more than one answer may be true but only one option represents the best answer

1. Which of these is an SI unit:

a. Joule
b. Newton
c. Tesla
d. Candela
e. Sievert

Pointer

- See *Table 28.2.*
- *Section 5.8* outlines the unit for intensity of lumination.

2. What would be the secondary symbol in notating the arterial content of oxygen?

a. *A*
b. *C*
c. *v*
d. *V*
e. *a*

Pointer

- See *Table 28.7.*

Answers to questions for Chapter 28 – Physical quantities and SI units

Multiple true / false questions

The following answers are true:

1. b and d

2. a, b, c, d and e

Single best answer questions

The options below represent the single best answer, although other options may also be true:

1. d

2. e