

MODULE ONE: BASIC SKILLS

ASSESSMENT FOUR: The Metric System

Write down the correct answer for each of the following computations. Try to complete this exercise in 20 minutes. Avoid using a calculator for these computations unless this is permitted at your place of learning.

- 1 One gram has
 - a 1000 mcg
 - b 10 000 mcg
 - c 100 000 mcg
 - d 1 000 000 mcg.

- 2 75 micrograms could also be written as
 - a 0.75 mg
 - b 0.075 mg
 - c 0.0075 mg
 - d 0.00075 mg

- 3 10 micrograms could also be written as
 - a 0.001 mg
 - b 0.00010 g
 - c 0.0001 g
 - d 0.01 mg

- 4 In 1.2 metres there are
 - a 120 mm
 - b 1200 cm
 - c 12 000 mm
 - d 120 cm

- 5 John is 180 cm tall. This is equal to
- a 0.18 m
 - b 1.8 m
 - c 18.0 m
 - d 18 000 mm
- 6 Polly's new baby weighs 3125 grams. This weight could also be written as
- a 312 500 mg
 - b 31 250 mg
 - c 3.125 kg
 - d 31.25 kg
- 7 Tom weighs 8.75 kilograms. His weight in grams is
- a 87 500
 - b 8750
 - c 875
 - d 87.5
- 8 Jenny is 5 feet 5 inches tall. If there are 12 inches in 1 foot, and each inch measures 2.54cm, what is her height to the nearest cm?
- a 132
 - b 136
 - c 150
 - d 165
- 9 Mary's fluid intake was 1.4 L of intravenous fluid, 30 ml of ice chips per hour for 4 hours, 150 ml of jelly and 0.2 L of soup. Her total fluid intake is
- a 1800 ml
 - b 1.85 L
 - c 18.7 L

- d 1870 ml
- 10 Polly is to have 2.4 grams of drug A each day, to be given every 4 hours. Each dose would contain
- a 600 mg
 - b 400 mg
 - c 300 mg
 - d 200 mg
- 11 Susie is to have 250 mcg of drug B four times each day. Her daily dose of drug B would be
- a 0.001 mg
 - b 0.01 mg
 - c 0.001 g
 - d 0.01 g
- 12 Jack has a heart condition and has been told to reduce his salt intake to 1.75 g per week. His daily intake of salt should not exceed
- a 250 mcg
 - b 0.25 g
 - c 350 mg
 - d 0.25 mg
- 13 Emma has an intravenous infusion in progress and 350 ml remain in the bag. If each ml has 20 potential drops, how many potential drops are left in the bag?
- a 700
 - b 3500
 - c 6500
 - d 7000

- 14 If Emma's infusion (Q 13) is dripping at 40 drops per minute, remembering that each ml is made up of 20 drops, how many minutes will this infusion take to complete?
- a 140
 - b 175
 - c 195
 - d 205
- 15 In relation to Emma's infusion (in the above questions), how much fluid is she receiving every hour?
- a 2 ml
 - b 60 ml
 - c 100 ml
 - d 120 ml
- 16 Emma has diarrhoea. She is permitted to drink only weak apple juice. How much ice water (solvent) is required to make up 200 ml of diluted apple juice (solute) if the V/V ratio is 3 to 2?
- a 200 ml
 - b 0.3 L
 - c 0.08 L
 - d 120 ml
- 17 The solute (apple juice) for Emma's drink, when expressed as a percentage would be
- a 30%
 - b 40%
 - c 50%
 - d 60%
- 18 With reference to Emma's apple drink, the solvent (water), if expressed as a decimal would be
- a 0.3
 - b 0.4

c 0.5

d 0.6

19 1 gram of powdered medication has been mixed with sterile water to form a solution of 4 ml in total. The concentration of this medicated solution would be

a 100 mg/ml

b 250 mg/ml

c 300 mg/ml

d 500 mg/ml

20 1 gram of powdered medication has been mixed so that the solution formed has a concentration of 200 mg/ml. The total volume of fluid in this bottle would be

a 10 ml

b 7.5 ml

c 5 ml

d 2.5 ml

ANSWERS

Check your answers. If you have made an error, perform the calculation once more and then check it with your calculator.

- 1 d There are 1000 mg in 1 g and 1000 mcg in 1 mg
 $1000 \times 1000 = 1\,000\,000$
- 2 b
- 3 d
- 4 d
- 5 b
- 6 c
- 7 b
- 8 d
- 9 d
- 10 b
- 11 c
- 12 b
- 13 d $350 \text{ ml} \times 20 \text{ potential drops/ml}$
- 14 b $7000 \text{ potential drops} \div 40 \text{ drops/minute}$
- 15 d $20 \text{ drops} = 1 \text{ ml}, 40 \text{ drops} = 2 \text{ ml} \times 60 \text{ minutes}$
- 16 c 3 to 2 is also 3 in 5 $\frac{3}{5} \times 200/1 = 120 \text{ ml solute}$
 (NOTE: v/v is taken to be the ratio of v(solute) to v(solvent))
 $200 \text{ ml drink} - 120 \text{ ml apple juice} = 80 \text{ ml or } 0.8 \text{ L water}$
- 17 d $\frac{3}{5} \times 100/1 = 60\%$
- 18 b If the solute is 60%, the solvent must be 40%
 $40 \div 100 = 0.4$
- 19 b The dose in the bottle was 1 gram in 4 ml of solution
 $1000 \text{ mg} \div 4 = 250 \text{ mg/ml}$
- 20 c $1000 \text{ mg} \div 200 \text{ mg/ml} = 5 \text{ ml}$