

# WCED EXTERNAL EXAMINATION

**Memorandum**

**Mathematics Paper 1**

**November 2019**

**Examiner: P.Swanepoel, et al**



**Grade: 7**

**Time: 2 hours**

**Total: 75**

**Moderator: R. Alves**

## Question 1

8

- 1.1 The **product** of the first three **prime numbers** is :
- 1.2 The current temperature is  $-10^{\circ}\text{C}$ . If increased by  $12^{\circ}\text{C}$ , it would be:
- 1.3  $7^2 - \sqrt{81} \div \sqrt[3]{125}$
- 1.4 The highest common factor of 40 and 60 is :
- 1.5 The simplified form of  $28 : 14 : 49$  is :
- 1.6 A vehicle travels at a constant speed of 110 km/h. How long will it take it to travel 660km?
- 1.7 Use BODMAS to solve  $35 - 5 \times 12 \div 4$
- 1.8 Solve  $6x - 4$  if  $x = 3$

- c) 30
- d)  $3^{\circ}\text{C}$
- b) 8
- c) 20
- c)  $4 : 2 : 7$
- d) 6hrs
- b) 90
- c) 14

## Question 2

20

2.1) a)

		2	5	9	0	9	8	
+	9	5	7	8	4	5	6	
	<b>9</b>	<b>8</b>	<b>3</b>	<b>7</b>	<b>5</b>	<b>5</b>	<b>4</b>	✓

(1)

b)

	1	0	9	3	2	4	
-	8	2	3	9	6		
	<b>2</b>	<b>6</b>	<b>9</b>	<b>2</b>	<b>8</b>		✓

(1)

c)

			2	8	9	2	
			x	8	9	5	
		1	4	4	6	0	
	2	6	0	2	8	0	
2	3	1	3	6	0	0	✓
<b>2</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>3</b>	<b>4</b>	<b>0</b>	✓

(2)

**Note!!!** If learners added correctly with **ONLY ONE** multiplication error. One mark will be allocated. 2 or more multiplication errors, no marks!!!

**2.2 ) Exponents - Simplify the following:**

(2 × 2 = 4)

a)  $\sqrt[2]{121} \times 3 + 5^2 =$

**= 11 × 3 + 25 ✓**

**= 33 + 25**

**= 58 ✓**

only circled areas

b)  $\sqrt[3]{216} + (9 - 2)^2 =$

**= 6 + 7<sup>2</sup>**

**= 6 + 49 ✓**

**= 55 ✓**

**2.3 ) Integers**

a)  $-3 + 6 = \underline{3}$  ✓

b)  $9 - (-8) = \underline{9 + 8} = \underline{17}$  ✓

c)  $5 \times (-3) = \underline{-15}$  ✓

d)  $-7 + (-4 \times -2) = \underline{-7 + 8} = \underline{1}$  ✓

(1)

(1)

(1)

(2)

2.4) If Jack, Mpho and Shakir each take three tablets per day when they are sick. How many pills will they take altogether if they are sick for four days?

(2)

$(3 \times 3) \times 4$  ✓ for setting up the multiplication in any way.

$=36$  ✓

☺ ANY METHOD WITH CORRECT ANSWER ✓ ✓ ☺

2.5) 26 people want to build a greenhouse for their community that costs R91 234. How much does each person have to pay?

(3)

$$\begin{array}{r}
 3\ 509 \\
 26 \overline{) 91\ 234} \\
 \underline{78} \phantom{00} \\
 132 \phantom{00} \\
 \underline{130} \phantom{00} \\
 234 \\
 \underline{234} \\
 0
 \end{array}$$

✓ For setting the division operation. Also  $91\ 234 \div 26$

for difference of 13 and bringing down the 2

(OR ANY OTHER SUITABLE METHOD)

2.6) Mount Everest is 8 848 m high and the lowest point in Africa is Lake Assal, in Djibouti, which is 157 m below sea level. What is the total distance between the top of Mount Everest and the lowest point at Lake Assal?

$\neq = 8\ 848 - (-157)$  ✓ For setting up the sum.

OR  $= 8\ 848 + 157$  ✓

$= 9\ 005\ \text{m}$  ✓

(2)

### Question 3

24

3.1) Which one of the fractions  $2\frac{5}{6}$ ;  $3\frac{2}{3}$ ;  $2\frac{3}{4}$  or  $3\frac{7}{12}$  is closest to 3?  $2\frac{5}{6}$  (1)

3.2) Simplify  $5\frac{42}{16}$   $7\frac{5}{8}$  (1)

3.3) Change  $7\frac{5}{8}$  to an improper fraction  $\frac{61}{8}$  (1)

3.4) Convert 0,68 to a common fraction in its simplest form.  $\frac{17}{25}$  (1)

3.5) What is  $\frac{5}{8}$  of 64kg? **40kg** (1)

3.6) Calculate:

a)  $356,9 + 27,283 - 5,999$

$356,900$

$+ \underline{27,283}$

$= \underline{384,183}$  ✓

$$\begin{array}{r} \underline{5,999} \\ 378,184 \checkmark \end{array}$$

(2)

b)  $94,61 \times 32,4$

$$\begin{array}{r} 9461 \\ \times \quad 324 \\ \hline 37844 \\ 189220 \\ + 2838300 \\ \hline 3065,364 \checkmark \end{array}$$

Note!!! If learners added correctly with ONLY ONE multiplication error. One mark will be allocated. 2 or more multiplication errors, no marks!!!

(2)

c)  $578,7 \div 9 = 64,3$

(1)

d)  $1\frac{7}{8} + 4\frac{3}{4}$

$$= 1\frac{7}{8} + 4\frac{6}{8} \checkmark$$

$$= 5\frac{15}{16} \checkmark$$

(2)

e)  $3\frac{3}{5} - 1\frac{4}{6}$

$$= 3\frac{18}{30} - 1\frac{20}{30} \longrightarrow \text{no marks for common denominator as discussed at meeting}$$

$$= 2\frac{48}{30} - 1\frac{20}{30} \longrightarrow \checkmark \text{ for borrowing from whole number}$$

$$= 1\frac{28}{30} \longrightarrow \checkmark \text{ for subtracting correctly}$$

$$= 1\frac{14}{15}$$

(2)

f)  $1\frac{7}{8} \times 2\frac{8}{12}$

$$= \frac{15}{8} \times \frac{32}{12} \longrightarrow \checkmark \text{ for changing BOTH to improper fraction.}$$

$$= \frac{5}{1} \times \frac{4}{4} = \frac{20}{4}$$

$$= 5 \longrightarrow \checkmark \text{ for simplifying to whole number.}$$

(2)

g) 45% of R240

$$= \frac{45}{100} \times \frac{240}{1} \quad \text{or} \quad \frac{9}{20} \text{ of } 240$$

$$= \frac{9}{1} \times \frac{12}{1} \checkmark \quad 240 \div 20 = 12 \checkmark$$

$$= \frac{108}{1}$$

$$12 \times 9$$

$$= R108✓$$

$$=108✓$$

(2)

3.7) H&M is having a winter sale. All items are sold at a 25% discount. Calculate what you will pay for a pair of jeans that originally cost R460?

$$\begin{aligned} \text{Calculating 25\%} &= \frac{1}{4} \times \frac{460}{1} && \text{or } 460 \div 4 && \text{setting up } \div \text{ or "of" calculation}✓ \\ &= \frac{1}{1} \times \frac{115}{1} && && =115 ✓ \\ &= R115 \text{ discount} \\ &= R460 - R115 \\ &= R345✓ \end{aligned}$$

(3)

3.8) Peter paid R120 for a soccer ball that originally cost R150.

a) What % of the original price did he pay?

$$\begin{aligned} &= \frac{120}{150} \times \frac{100}{1} && \text{or } \frac{120 \div 30}{150 \div 30} \\ &= \frac{120}{3} \times \frac{2}{1} && = \frac{40}{50} \\ &= \frac{240}{3} ✓ && = \frac{40 \times 2}{50 \times 2} = \frac{80}{100} ✓ \\ &= 80 \% ✓ && = 80\% ✓ \end{aligned}$$

(2)

b) With what % did the price of the soccer ball decrease?

$$= R150 - R120 = R30$$

$$\begin{aligned} &= \frac{30}{150} \times \frac{100}{1} \\ &= \frac{30}{3} \times \frac{2}{1} \\ &= \frac{60}{3} \\ &= 20\% \end{aligned}$$

$$\text{OR } 100\% - 80\% = 20\%$$

(1)

#### Question 4

4.1) Complete the flow-diagram by filling in the missing values

(2)

10

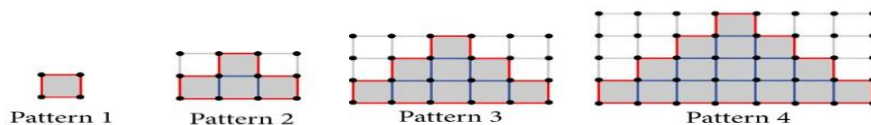
4.1.1) 23

4.1.2) 15

4.2 Extend the following number sequences to the next two terms :

(2)

4.2.1) 8 ; 14 ; 20 ; 26 ; 32 ; 38✓both (4.2.2) 1 ; 2 ; 4 ; 8 ; 16 ; 32 ✓both



4.3.1) How many squares will the 5<sup>th</sup> pattern have ? 25 squares

(1)

4.3.2) Determine the general rule for this pattern.  $Y = X^2$

(1)

4.3.3) How many squares will the 10<sup>th</sup> pattern have? Show how you got to your answer.

(2)

$$Y(10)^2 = 100 \text{ squares}$$

4.3.4) Which pattern will have 144 squares?  $\sqrt{144} = 12^{\text{th}}$  pattern

(2)

**Question 5**

13

5.1) Write these algebraic expressions in their shortest form:

a)  $2 \times b - 4 = 12b - 4$  ✓

b)  $(3 + m) \div n = \frac{3m}{n}$  ✓

c)  $a \times 3 \times 4 \times b = 12ab$  ✓

(3 × 1 = 3)

5.2) Write the following as algebraic expressions:

a) The sum of  $p$  and double  $q$ .  $p + 2q$  ✓

b) Subtract  $y$  from 2 and multiply by 6.  $6(2 - y)$  or  $(2 - y) \times 6$  ✓

c) Divide 9 by  $q$  and add 14.  $\frac{9}{q} + 14$  ✓

(3 × 1 = 3)

5.3) Solve these algebraic expressions by substitution. Let  $x = 4$  and  $y = 3$ .

a)  $xy = 4 \times 3 = 12$  ✓

b)  $\frac{x}{3y} = 4 \div 3 \times 3 = \frac{4}{9}$  ✓

c)  $5y - x = 5 \times 3 - 4 = 11$  ✓

(3 × 1 = 3)

5.4) Solve the following equations by inspection:

a)  $p + 8 = 17$   $p = 9$  ✓

b)  $22 - p = 9$   $p = 13$  ✓

c)  $\frac{p}{12} = 3$   $p = 36$  ✓

d)  $5p + 13 = 38$   $p = 5$  ✓

(4 × 1 = 4)

Total: 75