MATHEMATICS FORM ONE

ENDTERM ONE 2022 EXAMINATION

NAME..... MARKING SCHEME .....CLASS.....ADM NO.....

Instructions:

- ✓ *Answer all questions in the spaces provided.*
- ✓ *All working must be clearly shown under each question.*
- ✓ *Calculators will not be required while answering the questions.*

TIME: 2 HOURS

1. State the place values of the following digits in the number 201.789.

   a) 1 (1mk)

   Ones ✓1

   b) 8 (1mk)

   Hundredths ✓1

   c) 7 (1mk)

   Tenths ✓1

2. a) Write 207,099,099 in words. 2mks

   Two hundred and ~~seven~~ million, ninety nine thousand and ninety nine. ✓✓

   b) What is the total value of 7 in the number in (a) above? 1mk

   7,000,000 ✓1

3. Write in figures: 2mks

   Ninety five billion, one hundred and fifty four million, two hundred and twenty three thousand and thirty

   95 000 000 000
   154 000 000
   223 000
   030 ✓1

   95,154,223,030 ✓1

4. Determine, **without actual division**, whether the number 51,257,932 is:

i. divisible by 3 (2mks)

5+1+2+5+7+9+3+2 = 34 ✓1

34 is not a multiple of 3, Therefore 51,257,932 is not divisible by 3.

ii. divisible by 8 (2mks)

51257 932 ✓1

932 is not a multiple of 8, Therefore 51,257,932 is not divisible by 8 ✓1

iii. divisible by 11 (2mks)

5 1 2 5 7 9 3 2

5+2+7+3 = 17

1+5+9+2 = 17 ✓1

0

The difference of the sums of numbers in alternate positions is zero, hence 51257932 is divisible by 11. ✓

5. Mutai leaves behind 50 hectares of land and sh. 120,000 savings in his will. The land was sold at sh. 80,000 per hectare. If his wife gets sh. 520,000 and the rest is divided equally among his four sons and two daughters, how much money does each child get? 4mks

Total Cash = 50 x 80,000 + 120,000

= 4,120,000 /= ✓1

Remainder after deducting wife's share = 4,120,000 − 520,000

= 3,600,000 ✓1

Children = 3,600,000 ✓1

6

= 600,000 /= ✓1

6. Convert the recurring decimal $0.\dot{1}\dot{8}$ into fraction 3mks

Let r = 0.181818...

10r = 1.81818...

100r = 18.181818... ✓1

100r = 18.181818

r = 0.181818

99r = 18.0 ✓1

$\frac{99r}{99} = \frac{18.0}{99}$

$r = \frac{18}{99}$

$= \frac{2}{11}$ ✓1

7. Express 900 as a product of its prime factors (2mks)

900
2 | 450
2 | 225
3 | 75
3 | 25
5 | 5
1

$= 2 \times 2 \times 3 \times 3 \times 5 \times 5$

$= 2^2 \times 3^2 \times 5^2$ ✓1

8. Find their **L.C.M** and the **G.C.D** of 24, 60 and 108 using prime factors method and **leave your answers** as a product of their prime factors. 4mks

$24 = 2^3 \times 3$

$60 = 2^2 \times 3 \times 5$

$108 = 2^2 \times 3^3$

$L.C.M = 2^3 \times 3^3 \times 5$ ✓1

$G.C.D = 2^2 \times 3$ ✓1

9. The L.C.M of three numbers is 24 and their G.C.D is 4. If two of the numbers are 8 and 12, find the other number. 4mks

$LCM = 2^3 \times 3$

$GCD = 2^2$

$8 = 2^3$

$12 = 2^2 \times 3$

Other number $= 2^2 = 4$

OR

$\frac{LCM \times GCD}{\text{One of the Number}}$

$\frac{24 \times 4}{8} = 12$ ✗

$\frac{24 \times 4}{12} = 8$ ✗

$\frac{LCM \times GCD}{LCM \text{ of present number}} = \frac{24 \times 4}{24} = 4$

10. Convert $1\frac{3}{4}$ into a mixed decimal 2mks

$\frac{7}{4}$

4 | 7 (1.75)
4
30
28
20
20
0

$= 1.75$ ✓1

11. Work out the following (4mks)

i) (-5) x (-2) x (-4)

$= 10 \times -4$ ✓1

$= -40$ ✓1

BODMAS

ii) (-36) ÷ (-9) × (+2)

$\left(\frac{-36}{-9}\right) \times +2$ ✓1

$= +4 \times +2$ ✓1

$= +8$ //

12. Three-fifths of work is done on the first day. On the second day, ¾ of the remainder is completed. If third day $^7/_8$ of what remained is done, what fraction of work remains to be done? (3mks)

Remainder after Day 1:

$1 - \frac{3}{5} = \frac{2}{5}$

Day two: $\frac{3}{4}$ of $\frac{2}{5}$ ✓1

$= \frac{3}{10}$ ✓1

Total $= \frac{3}{5} + \frac{3}{10} = \frac{6+3}{10}$

$= \frac{9}{10}$

Remainder $= 1 - \frac{9}{10}$

$= \frac{1}{10}$ ✓1

Third day:

$\frac{7}{8}$ of $\frac{1}{10}$

$= \frac{7}{80}$

Total $= \frac{9}{10} + \frac{7}{80} = \frac{72+7}{80}$

$= \frac{79}{80}$ ✓1

Remainder $= \frac{1}{80}$ //

13. Arrange the following fractions in descending order. (3mks)

$^7/_{12}, ^2/_3, ¾, ^5/_6$

7, 8, 9, 10

12

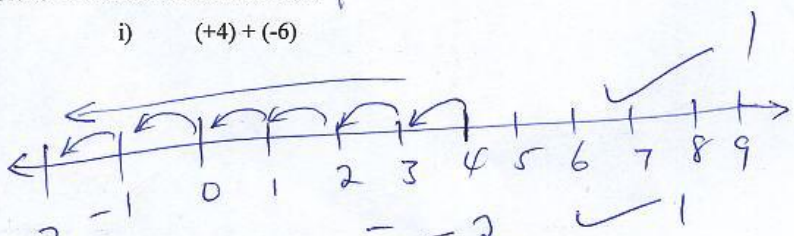
$\frac{7}{12}, \frac{8}{12}, \frac{9}{12}, \frac{10}{12}$ ✓1

$= \frac{10}{12}, \frac{9}{12}, \frac{8}{12}, \frac{7}{12}$ ✓1

$= \frac{5}{6}, \frac{3}{4}, \frac{2}{3}, \frac{7}{12}$ // ✓1

14. Use a number line to evaluate: 4mks

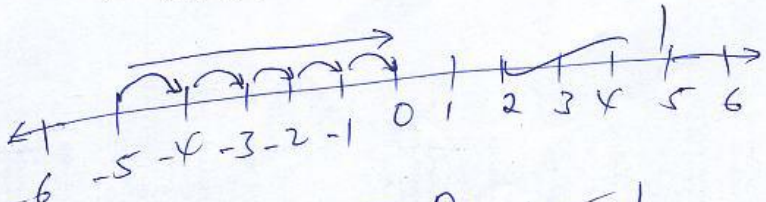
i) (+4) + (-6)



✓1

$= -2$ // ✓1

ii) (-5) – (-5)



$= 0$ // ✓1

15. Evaluate; 3mks

$\left\{\left(1\frac{1}{4}-\frac{3}{8}\right)\div 2\frac{1}{2}+1\frac{3}{4}\div 1\frac{1}{4}\right\}$

BODMAS.

$\left(\frac{5}{4}-\frac{3}{8}\right)\div 2\frac{1}{2}+1\frac{3}{4}\div 1\frac{1}{4}$

$=\left(\frac{7}{8}\div 2\frac{1}{2}\right)+\left(1\frac{3}{4}\div 1\frac{1}{4}\right)$

$\frac{7}{8}\times\frac{2}{5}+\frac{7}{4}\times\frac{4}{5}$

$=\frac{7}{20}+\frac{7}{5}=\frac{7+28}{20}=\frac{35}{20}$

$=1\frac{15}{20}=1\frac{3}{4}$

16. Write the 0.12 as fractions in its simplest form. 2mks

$=\frac{12}{100}=\frac{3}{25}$

$=\frac{3}{25}$

17. Write the following in standard form. (2mks)

i) 32890

3.2890×10^{4}

ii) 0.00346

3.46×10^{-3}

18. Find the squares of the following using mathematical tables.

i) 2594 (2mks)

$(2.594\times10^{3})^{2}$

$=2.594^{2}\times1000^{2}$

$=6.729\times1000000$

$=6729000$

ii) 0.005643 (2mks)

$(5.643 \times 10^{-3})^2$ ✓

$= 5.643^2 \times \left(\frac{1}{1000}\right)^2$ ✓ 1

$= 31.84 \times \frac{1}{1000000}$

$= 0.00003184$ // ✓ 1

19. Find the square roots of the following numbers using mathematical tables.

i) 5974 (3mks)

$\sqrt{59.74 \times 10^2}$ ✓ 1 (+3 − 1 not even)

$= \sqrt{59.74} \times \sqrt{100}$ ✓ 1

$= 7.729 \times 10$

$= 77.29$ ✓ 1

ii) 0.0000602 (3mks)

$\sqrt{60.2 \times 10^{-5}}$ ✓ 1 (−5 not even)

$= \sqrt{60.2} \times \sqrt{\frac{1}{100000}}$ ✓ 1

$= 7.759 \times \frac{1}{1000}$ ✓ 1

$= 0.007759$ //

20. Simplify: $\frac{0.165 \times 12.75}{0.25 \times 0.0075} \times \frac{1000000}{100000}$ ✓ 1 (3mks)

$= \frac{165 \times 1275 \times 10}{25 \times 75}$ ✓ 1 1

$= 33 \times 17 \times 2$

$= 1122$ // ✓ 1

21. Solve the equation. $\frac{x+1}{2} + \frac{2x+1}{2} = 9$ 3mks

$\left(\frac{x+1}{2} + \frac{2x+1}{2} = 9\right) \times 2$ ✓

$x + 1 + 2x + 1 = 18$

$3x + 2 = 18$ ✓ 1

$3x = 18 - 2$

$\frac{3x}{3} = \frac{16}{3}$

$x = \frac{16}{3}$ // ✓ 1