UMMUL-QURA HIGH SCHOOL

Arowona Bus-Stop, Akanran Road, Oyo State, Ibadan.

First-Term Examination, 2020/2021 Session.

SUBJECT: Mathematics. CLASS: JSS 3 TIME: 3 hours.

PART I: ***OBJECTIVES*** ***Time:*** 1:15 minutes

Instructions: Answer ***all*** questions in this part.

1. One of the following is ***not*** an algebraic term.
   A. 9xyz.
   B. 3a -z.
   C. 3ab.
   D. 11pqrs.
2. Write 3945 in Roman numerals.
   A. MMMIXIVV.
   B. MMMXCXLV.
   C. MMMCMVL.
   D. *MMMMXCL*
3. Approximate 0.007595 to ***three*** significant figures.
   A. 0.07.
   B. 0.00759.
   C. 0.007510.
   D. 0.00760.
4. Fine the LCM of $6a^2b$, $8b^3c$ and $10a^2b^2c^3$.
   A. $120a^2b^2c^3$.
   B. $120a^2b^3c^3$
   C. 120abc.
   D. 2abc.
5. What is the value of 5 in 2057.14?
   A. 0.5.
   B. 5.
   C. 50
   D. 500
6. Find the sum of 19.1, 110.199 and 10.91.
   A. 129.209
   B. 140.209
   C. 229.209
   D. 2229.109
7. What is the reciprocal of $\frac{61}{3}$?
   A. $-\frac{3}{61}$
   B. $\frac{21}{2}$
   C. $\frac{19}{3}$
   D. $\frac{13}{5}$
8. Express 0.00123 in standard form.
   A. 1.23×10^3
   B. 1.23×10^{-3}
   C. 1.23×10^2
   D. 1.23×10^{-2}
9. Expand and simplify: $3(2x - y) - \frac{1}{2}(4x - 6y)$.
   A. 8x - 6y
   B. 8x + 3y
   C. 4x + 6y
   D. 4x
10. Find the least number by which 84 must be multiplied to give a perfect square.
    A. 21
    B. 13
    C. 7
    D. 3

11. If $y^3 - 5 = 120$, what is the value of y?
    A. 5
    B. 15
    C. 40
    D. 115
12. Express $\frac{128}{800}$ in its lowest term.
    A. $\frac{32}{200}$
    B. $\frac{16}{100}$
    C. $\frac{8}{25}$
    D. $\frac{4}{25}$
13. If a = -6, b = $-\frac{1}{2}$. Evaluate $\left(\frac{a+b}{a-b}\right)^2$.
    A. -1
    B. $\frac{13}{11}$.
    C. $-\frac{11}{13}$.
    D. $\frac{169}{121}$.
14. If product of two numbers is $\frac{20}{2}$. If one of them is 41. What is the other number?
    A. $840\frac{1}{2}$
    B. $420\frac{1}{2}$
    C. $20\frac{1}{2}$
    D. $2\frac{1}{2}$
15. If the angels of a quadrilateral are: $(k + 10)^0$, $(2k - 30)^0$, $(k + 20)^0$ and $4k^0$. Find k.
    A. 63
    B. 45
    C. 36
    D. 28
16. Factorize $15xyz - 9x^2y$.
    A. 3xy (5z – 3x)
    B. 3xy (3x 5z)
    C. 3xy (5 – 3x)
    D. 3x (5yz – 3xy)
17. Solve the equation 2(6y – 5) – 4(2y -7) = 6, find y.
    A. -2
    B. -1
    C. -3
    D. -4
18. Simplify $213_4 \times 21_4$.
    A. 10533
    B. 11533
    C. 11133
    D. 11073
19. Which of the following is ***not*** the property of scalene triangle?
    A. *None* of the sides are equal.
    B. *None of the angles are equal.*
    C. *No line of symetry.*
    D. *Each angle is equal.*
20. In a triangle, the sizes of the angles are $(m + 12)^0$, $(2m - 40)^0$ and n^0. What is the value of n when $m = 38^0$?
    A. 144
    B. 142
    C. 130
    D. 94
21. Find the area of the shape below;
    A. 4 m^2
    B. 8 m^2
    C. 12 m^2
    D. 16 m^2
22. The perimeter of a rectangular table is 80 m. Find the length of the table if the width is 15m.

A. 25
B. 40
C. 50
D. 65

23. If a = 1, b = 3 solve for x in the equation $\frac{a}{a-x} = \frac{b}{x-b}$.
A. $\frac{3}{4}$
B. $\frac{2}{3}$
C. $\frac{3}{2}$
D. $\frac{4}{3}$

24. A trapezium has two parallel sides of length 5 cm and 9 cm. The distance between the parallel sides is.
A. 14
B. 7
C. 6
D. 3

25. Simplify $101010_2 + 11011_2 - 10101_2$
A. 110000
B. 110001
C. 101010
D. 101100

26. Solve the inequality
-3(x - 2) < -2(x + 3)
A. x > 12
B. x < 12
C. x $\geq$ 12
D. x $\leq$ 12

27. Solve 2m - $\frac{1}{3}$ - 3 - $\frac{m}{2} = \frac{m}{4}$
A. -22
B. $\frac{8}{3}$
C. -2
D. 2

28. Divide 2.646 by 0.9 give your answer in 1 d. p.
A. 2.094
B. 2.9
C. 2.94
D. 2.904

29. Divide the LCM of 6, 12 and 24 by the HCF of 30 and 60.
A. $\frac{4}{5}$
B. $\frac{3}{4}$
C. $\frac{3}{5}$
D. $\frac{1}{4}$

30. Reduce $\frac{49}{12}$ to its lowest term.
A. $\frac{7}{14}$
B. $\frac{7}{12}$
C. $\frac{7}{9}$
D. $\frac{7}{6}$

31. How many sides does an octagon have?
A. 4
B. 6
C. 7
D. 8

32. If 100011_2 is expressed in the form A10, where A is the number and 10 is the base. Find A10
A. 35
B. 32
C. 30
D. 28

33. Solve for x, if 3/x - 3/2x = 10.
A. $\frac{1}{21}$

B. $\frac{1}{5}$

C. $\frac{1}{12}$

D. $\frac{3}{20}$

34. Approximate to the nearest hundred 28 768.
    A. 29 000
    B. 28 800
    C. 28 700
    D. 28 000
35. Solve simultaneously 3p + 5q = 11 and 2p - q = 3.
    A. p = 3, p = 3
    B. p = 2, q = 2
    C. p = 2, q = 1
    D. p = 1, q = 2
36. What is MCMXLII in Roman numerals?
    A. 1952
    B. 1947
    C. 1942
    D. 1742
37. Which of the following is ***not*** equivalent to $\frac{1}{2}$?
    A. $\frac{9}{18}$
    B. $\frac{15}{30}$
    C. $\frac{2}{5}$
    D. $\frac{3}{6}$
38. How many days are there from May 25 to June 10?
    A. 30 days.
    B. 16 days
    C. 15 days
    D. 14 days
39. Expand and simplify 5(x + y) - (x - 2y).
    A. 4x + 7y
    B. 4x + 4y
    C. 4x + 3y
    D. 4x - 4y
40. Arrange the following fractions in ascending order $\frac{1}{2}, \frac{3}{10}, \frac{7}{10}, \frac{2}{5}$.
    A. $\frac{3}{10}, \frac{2}{5}, \frac{1}{2}, \frac{7}{10}$
    B. $\frac{1}{2}, \frac{3}{10}, \frac{2}{5}, \frac{7}{10}$
    C. $\frac{1}{2}, \frac{2}{5}, \frac{7}{10}, \frac{3}{10},$
    D. $\frac{7}{10}, \frac{2}{5}, \frac{3}{10}, \frac{1}{2}$

PART II: ***THEORY*** ***Time:*** 1:45 minutes

Instructions: Answer ***all*** questions in this part.

1a. Solve the equation:

$3x + (\frac{5x+3}{5}) = \frac{x}{3} + \frac{1}{5}$

1b. If a = 2, b = -3 and c = 4. Evaluate each of the following

i. $\sqrt{a^2(b^2 + c^2)}$ ii. $\frac{c}{a} - \frac{a}{b} + \frac{2(b+c)}{a}$

1c. When 4 is divided by (k - 2), the result is less than or equal to when 3 is divided by (2k + 1). Find the three lowest values of k.

2a. Remove brackets and simplify:

(5a) (2b) + 4b (5a + 2b) + a (3a – 2b)

2b. Expand the following:

i. $5(3y + 2) – 5(2y – 3)$ ii. $(3x – 1)(2x – 1)$

2c. I think of a number and multiply it by 3, then 6 is added and the result is divided by 5. Everything is equal to 2. What is the number?

3a. I think of a number, add 7, multiply by 3, subtract 3, divided be 4 and then multiply by 12. The result is 72. Find the number.

3b. Solve the linear inequalities and show the solution set on the number line.

$10 < 2x - 1 < x + 5$.

3c. Draw a table of values of linear equations, using the given range of value.

$y = \frac{x}{2} + 4; -3 \leq x \leq 3$

4a. Solve the equations: $4(5y + 3) - 5(3y + 1) = 27$.

4b. Factorize the algebraic equations:

i. $12c^3d^2 + 3c^2d^3$.
ii. $6x^2y^3 + 4x^3y$

4c. What is the area of this rectangular shape, if the perimeter is 52?