**ASꞌSALAM UNIQUE COLLEGE.**

Along New garage- Apata Express road, Oluyole Extension, Ibadan

**CLASS:** SSTWO **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  FIRST MID-TERM EXAM **SESSION**: 2018/2019 SESSION

*Instruction: Attempt all the questions in part A and ANY two in part B*

1. Express 0.029646 correct to three decimal places.(a)0.02 (b)0.029 (c)0.03 (d)0.030 (e)30
2. Simplify, leaving your answer in standard form, $\frac{0.015 ×0.063}{0.0013}$

(a)7.269 × 10-2 (b) 7.269 × 102 (c) 7.269 × 101 (d) 7.269 × 10-1 (e) 7.269 × 100

1. If y varies inversely as x and x = ½ when y = 6, find y when x = 1/3

(a)1/36 (b) 9 (c) 12 (d) 18 (e) 1

1. Okon won a 200m race in 25 seconds. If he ran at the same rate, how long in minutes,

would it take him to complete 800m? (a) 2$\frac{1}{2}$ (b) 3$\frac{1}{2}$ (c) 2 (d) 1 (e) 1$\frac{2}{3}$

1. A piece of land was offered for N2,100,000.00. If the price was reduced in the ratio 3 : 7,

find the new selling price. (a)N900,000 :00 (b)N1,100,000:00 (c)N1,600,000:00 (d) N1,800,000:00 (e) 2,700,000:00

1. Expand: (5x - y)(x – 3y). (a) 5x2 - 14xy + 3y2 (b) 5x2 - 16xy + 3y2 (c) 5x2 + 14xy - 3y2 (d) 5x2 + 16xy - 3y2 (e) 5x2 + 16xy + 3y2
2. Solve the simultaneous equation: 3x = -y and y = x + 4

a) x = -1, y = 3 (b) x = -3 , y = -1 (c) x = -1 ,y = -3 (d) x = 3 , y = 1 (e) x = 1 y = 3

8. A side of a regular polygon is 10cm. If each of its interior angles is 1560, calculate its perimeter.

 (a) 100cm (b) 120cm (c) 150cm (d) 240cm (e) 1560cm

9. A trader made a profit of 15% by selling an article for N345.00. Calculate the actual profit.

 (a) N300.00 (b) N 117.00 (c) N51.75 (d) N45.00 (e) N100.00

10 If y = 23five + 101three , find y, leaving your answer in base two.

 (a) 1110 (b) 10111 (c) 11101 (d) 111100 (e) 11001

11. The angle of elevation of the top of a tower from a point on the ground which is 36m away from the foot of a tower is 300. Calculate the height of the tower. (a)62.35m (b)20.78m (c)18.00m (d)10.39m (e)72m

12. Solve the equation: 10 – 3x – x2 = 0 (a) x=2 or -5 (b) x=-2 or 5 (c) x= -1or 10 (d)x=2 or 5 (e)x=0 or1

13. Given that µ = {1,2,3,……,10}, P = {x : x is prime} and Q = {y :y is odd}, find P`

 (a) {2} (b) {1, 9} (c) {3, 5, 7} (d) {4, 6, 8, 10} (e) {1, 4, 6, 8, 9, 10}

14. Given that p = 2, q = -5 and r = -4, evaluate 3p2 – q2 – r3. (a) 101 (b) 77 (c) 51 (d) -27 (e) 62

15. Convert 111.112  to base 10 (a) 7.05 (b) 7.11 (c) 7.25 (d) 7.5 (e) 7.75

16. 12% of a sum of money is N480.00. What is 25% of the same sum?

 (a) N1,000.00 (b) N4,000.00 (c) N8,000.00 (d) N6,240.00 (e) N10,000.00

17. A rectangle whose length is twice its width, has the same perimeter with a square of area 144cm2 . Find the length of the rectangle. (a) 10cm (b) 12cm (c) 16cm (d) 24cm (e) 144cm

18. An obtuse angle is four times the size of its supplementary angle. Find the value of the supplementary angle. (a) 360 (b) 450 (c) 300 (d) 180 (e) 260

19. The volume of a cylinder with diameter 14cm is 770 cm3. What is the curved surface area of the cylinder? {Take $π$ = 22/7} (a) 528 cm2 (b) 374 cm2 (c) 308 cm2 (d) 220 cm2 (e) 105 cm2

20. Find the nth term of the sequence 5, 10, 20, 40, 80,……..

(a) 5 × 2n + 1 (b) 2 × 5n - 1  (c) 5 × 2n - 1 (d) 5 × 5n - 1 (e) 2 × 5n + 1

21. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

22. Add 54eight and 67eight, giving your answer in base eight. (a) 1118 (b) 1218 (c) 1238 (d) 1338 (e) 1438

23. Express 60500 in standard form. (a)6.05×10-4 (b)6.05×10-3 (c) 6.05×104 (d)6.05×105 (e) 6.05×106

24. Given that a = 2/3 and b = -6, evaluate ab – b/a. (a) 0 (b) 5 (c) 8 (d) 9 (e) 13

25. Find the sum to infinity of the GP 9 – 3 + 1 - ………. (a) 6 (b) 6$ ^{3}/\_{4}$ (c) 13$ ^{1}/\_{2}$ (d) 12 (e) 27

26. Find the value of 2x – y if x + y = 8 and 4x – y = 22. (a) 2 (b) 4 (c) 6 (d) 8 (e) 10

27. Find the sum of all the multiples of 7 between 0 and 300. (a) 42 (b) 294 (c) 2058 (d) 2107 (e) 6321

28. Express 4164.086 correct to 2s.f. (a) 42 (b) 4100 (c) 4164.08 (d) 4164.09 (e) 4200

29. If log10 3 = 0.477, evaluate log10 27 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 1.8 (e) 2.52

30. Find the value of [41/4]6 . (a) 1/8 (b) 4 (c) 6 (d) 8 (e) 16

**PART B :**

1. Evaluate 15.47 × 0.0852 correct to 3 significant figures.

 (254)

2. Calculate the percentage error if the speed of an aircraft is 800km/h to 1 s.f

3. A GP has 8 terms. Its first and last terms are 0.3 and 38.4. Calculate:

 (a) the common ratio (b) the sum of the terms of the GP

4. The salary scale for a clerical officer starts at N1.1 million per annum. A rise of N72000 is given at the end of each year. Find the total amount of the money earned in 12 years.

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**CLASS:** SS THREE **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  FIRST MID-TERM EXAM **SESSION**: 2018/2019 SESSION

*Instruction: Attempt all the questions in part A and ANY two in part B*

1. A money lender collects £200 simple interest on a capital after 2years at 5%. Calculate the capital invested. (a) £1,000.00 (b)£2,000.00 (c)£3,000.00 (d)£4,000.00 (e)£1,500.00

2. A book seller gives 5% discount to a customer who pays cash. What is the marked price of a book for which the customer pays N475.00? (a) N450 (b) N500 (c) N1000 (d) N400 (e) N520

3. If y varies inversely as the cube root of x and y = 4 when x = 27, find y when x = 8

 (a) 6 (b) 4 (c) 3 (d) 2 (e) 5

4. The nth term of a sequence is 22n (-1/2) n .Find the third term. (a) -512 (b) -64 (c) -32 (d) -8 (e) 0

5. If x = 3.5 and y = 1.5, evaluate (2x + y)(x2 – y2). (a) 117 (b) 96 (c) 85 (d) 80 (e) 73

6. Factorize: 16x2y – 24x3y3. (a) 8x2y(2–3xy2) (b) 4x2(4y–6xy3) (c) 2xy(8x-12x2y2) (d)8(2x2y-3x3y3)

7. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y

8. If x+2y = 7 and 4x+11y = 34, by how much is 3y less than 10? (a) 3 (b) 4 (c) 5 (d) 7 (e) 6

9. Solve the equation: 7x2 – 3x – 10 = 0 (a) -1, 10/7 (b) 1, -10/7 (c) -1, -10/7 (d) 1, 10/7 (e) 1, 7/10

10. A rectangular tank 82cm long, 37cm wide and 75cm deep has the same volume as a cylindrical tank. If the radius of the cylindrical tank is 30cm, calculate its height. (Take π = 3.140)

 (a) 83.00cm (b) 80.52cm (c) 52.80cm (d) 50.80cm (e) 102cm

11. A chord PR of a circle, Centre O, is 20cm long. If PRO = 1200 , calculate the radius of the circle.

 (a) 16.0cm (b) 13.0cm (c) 11.5cm (d) 11.2cm (e) 12,0cm

12. In an octagon, three of the interior angles are x0 each. Each of the remaining five interior angles is (16 + x). Find the value of x. (a) 1020 (b) 1050 (c) 1200 (d) 1250 (e) 1300

13. Simplify: 6 $^{1}/\_{3}$ - 2 $^{3}/\_{4}$ + 1 $^{1}/\_{6}$ . (a) 4 $^{3}/\_{4}$ (b) 4 $^{1}/\_{5}$ (c) 2 $^{1}/\_{4}$ (d) $^{11}/\_{30}$ (e) 6 $^{5}/\_{8}$

14. Calculate the perimeter of a quadrant of a circle, radius 10.5cm. (Take π = 22/7)

 (a) 37.5cm (b) 36.0cm (c) 32.5cm (d) 27.0cm (e) 35.7cm

15. Express the sum of 10-2 and 10-3 in standard form. (a)1.0×10-6 (b) 1.0×10-4 (c) 1.1×10-3 (d) 1.1×10-2 (e)0

16. Convert 22014 to a base ten numeral. (a) 128 (b) 137 (c) 161 (d) 165 (e)182

17. Given that tanα = 21/20, find the value of α. (a) 0.0170 (b) 0.0180 (c) 43.600 (d) 46.400 (e) 0.170

18. Find the sum of all the multiples of 9 between 1 and 250.

 (a) 3666.7 (b) 3597.2 (c) 3500.0 (d) 3496.5 (e) 3402.0

19. Express 0.0005854 in standard form.

 (a) 5.854×104 (b) 5.854×103 (c) 5.854×10-1 (d) 5.854×10-3 (e) 5.854×10-4

20. A student got 78 marks out of a possible 120. Express the student’s mark as a percentage.

 (a) 58% (b) 65% (c) 68% (d) 72% (e) 78%

21. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

22. Add 54eight and 67eight, giving your answer in base eight. (a) 1118 (b) 1218 (c) 1238 (d) 1338 (e) 1438

23. Express 60500 in standard form. (a)6.05×10-4 (b)6.05×10-3 (c) 6.05×104 (d)6.05×105 (e) 6.05×106

24. Given that a = 2/3 and b = -6, evaluate ab – b/a. (a) 0 (b) 5 (c) 8 (d) 9 (e) 13

25. Find the sum to infinity of the GP 9 – 3 + 1 - ………. (a) 6 (b) 6$ ^{3}/\_{4}$ (c) 13$ ^{1}/\_{2}$ (d) 12 (e) 27

26. Find the value of 2x – y if x + y = 8 and 4x – y = 22. (a) 2 (b) 4 (c) 6 (d) 8 (e) 10

27. Find the sum of all the multiples of 7 between 0 and 300. (a) 42 (b) 294 (c) 2058 (d) 2107 (e) 6321

28. Express 4164.086 correct to 2s.f. (a) 42 (b) 4100 (c) 4164.08 (d) 4164.09 (e) 4200

29. If log10 3 = 0.477, evaluate log10 27 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 1.8 (e) 2.52

30. Find the value of [41/4]6 . (a) 1/8 (b) 4 (c) 6 (d) 8 (e) 16

**PART B :**

1. (a) Find the sum to which $600 will amount in 3 years at 11% per annum compound interest. Give

 your answer to the nearest cent

 (b) Find the value of x for which the matrix has no inverse

 x-2 1

 2 x - 3

2. (a) Solve for x and y leaving your answer in surd form with rational denominators

(b) Evaluate without using tables, 3log 2 + log20 – log 1.6

3. (a) Evaluate 23.97 × $\sqrt{0.7124}$ correct to 3 significant figures.

 3.877 × 52.18

 (b) Simplify 2$\sqrt{135}$ - 2$\sqrt{60}$ + $\sqrt{15}$ - $\sqrt{240}$

4. Use the matrix method to solve the pair of simultaneous equations.

 6c – d = -2 and 10c – 3d = -10

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**CLASS:** SS TWO **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  SECOND MID-TERM EXAM **SESSION**: 2016/2017 SESSION.

PART A

Instruction: Attempt all the questions in this part.

1. Express 0.029646 correct to three decimal places (a) 0.02 (b) 0.029 (c) 0.03 (d) 0.030

2. Simplify, leaving your answer in standard form, 0.015 X 0.063

 0.0013

 (a) 7.269 x 10-2 (b) 7.269 x 10-1 (c) 7.269 x 101 (d) 7.269 x 102

3. If y varies inversely as the cube root of x and y = 4 when x = 27, find y when x = 8

 (a) 6 (b) 4 (c) 3 (d) 2 (e) 5

4. Okon won a 200m race in 25 seconds. If he ran at the same rate, how long in minutes, would it take him to complete 800m? (a) 2$ \frac{1}{2}$ (b) 1$ \frac{2}{3}$ (c) 2 (d) 1

5. A piece of land was offered for N2,100,000.00. If the price was reduced in the ratio 3 : 7, find the new selling price. (a) N900,000 (b) N1,100,000 (c) N1,600,000 (d) N1,800,000

6. Expand: ( 5x – y )( x – 3y ) (a) 5x2 + 16xy + 3y2  (b) 5x2 - 16xy + 3y2 (c) 5x2 + 14xy - 3y2 (a) 5x2 - 14xy + 3y2

7. Solve the simultaneous equations : 3x = -y and y = x + 4

 (a) x = -1 and y = 3 (b) x = - 3 and y = -1 (c) x = -1 and y = - 3 (d) x = 3 and y = 1

8. A side of regular polygon is 10cm. If each of its interior angles is 1560 , calculate its perimeter.

 (a) 100 cm (b) 120 cm (c) 150 cm (d) 240 cm

9. An obtuse angle is four times the size of its supplementary angle. Find the value of the supplementary angle. (a) 450 (b) 360 (c) 300 (d) 180

10. A rectangle whose length is twice its width, has the same perimeter with a square of area 144 cm2. Find the length of the rectangle. (a) 10 cm (b) 12 cm (c) 16 cm (d) 24 cm

11. Factorize: 16x2y – 24x3y3. (a) 8x2y(2–3xy2) (b) 4x2(4y–6xy3) (c) 2xy(8x-12x2y2) (d)8(2x2y-3x3y3)

12. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y

13. If x+2y = 7 and 4x+11y = 34, by how much is 3y less than 10? (a) 3 (b) 4 (c) 5 (d) 7 (e) 6

14. Solve the equation: 7x2 – 3x – 10 = 0 (a) -1, 10/7 (b) 1, -10/7 (c) -1, -10/7 (d) 1, 10/7 (e) 1, 7/10

15. A rectangular tank 82cm long, 37cm wide and 75cm deep has the same volume as a cylindrical tank. If the radius of the cylindrical tank is 30cm, calculate its height. (Take π = 3.140)

 (a) 83.00cm (b) 80.52cm (c) 52.80cm (d) 50.80cm (e) 102cm

16. Convert 22014 to a base ten numeral. (a) 128 (b) 137 (c) 161 (d) 165 (e)182

17. Given that tanα = 21/20, find the value of α. (a) 0.0170 (b) 0.0180 (c) 43.600 (d) 46.400 (e) 0.170

18. Find the truth set of the inequality 3x – 4 < 5x + 4.(a){x:x> -4}(b) {x:x< -4} (c) {x:x> 4} (d) {x:x< -4}

19. Simplify: $\frac{1}{a-b}$ + $\frac{2}{a}$ . (a) $\frac{3a-2b}{a(a-b)}$ (b) $\frac{a-2b}{a(a-b)}$ (c) $\frac{a+2b}{a(a-b)}$ (d) $\frac{3a+2b}{a(a-b)}$

20. If P = -3 and q = 5, evaluate P2 – Pq2 – P3. (a) 54 (b) 75 (c) 93 (d) 111

21. The diagonals of a rhombus are 10 cm and 24 cm. Calculate the length of aside.

(a)13cm (b)22cm (c)26cm (d)30cm

22. An interior angle of a regular polygon is 4 times its exterior angle. Find the number of sides of the polygon. (a) 4 (b) 5 (c) 8 (d) 10

23. Solve the equation x2 - 2$\sqrt{3}$ x + 3 = 0

 (a) x = $\sqrt{3}$ , x = $\sqrt{3}$ (b) x = 2 $\sqrt{3}$ , x = -2$\sqrt{3}$ (c) x = $\sqrt{3}$ + $\frac{3}{2}$, x = $\sqrt{3}$ – $\frac{3}{2}$ (d) x = $\sqrt{3}$, x = - $\sqrt{3}$

24. What value of k makes the expression y2 + $\frac{y}{2}$ + k a perfect square? (a) $\frac{1}{16}$ (b) $\frac{1}{8}$ (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

25. A trader borrowed D3,000.00 from a money lender at a simple interest rate o 2$ \frac{1}{2}$ % per annum. After 8 months, he paid back both the interest and principal. How much did the trader pay back altogether?

 (a) D3500.00 (b) D3250.00 (c) D3150.00 (d) 3050.00

26. How many minutes will it take to cover a distance of 8.1km at an average speed of 5ms-1

 (a) 16.2 min (b) 22.3 min (c) 27.0 min (d) 40.5 min

27. Find the sum to infinity of the GP 9 – 3 + 1 - …… (a) 6 (b) 6 $\frac{3}{4}$ (c) 12 (d) 27

28. Express 4164.086 correct to 2 s.f (a) 42 (b) 4100 (c) 4164.08 (d) 4200

29. If log103 = 0.477, evaluate log1027 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 2.52

30. The first term of an arithmetic progression is 8. If the tenth term is double the second term, the common difference is …… (a) 4/3 (b) 8/7 (c) 1 (d) 7/8

PART TWO

Instruction: Attempt ANY two questions in this part.

1. Solve the following inequalities graphically for integral values of x and y.

 Y ≥ 1 , y – x < 5 , 2x + y ≤ 0

2. Simplify m2 – n2 ÷ m2 + mn

 m2 – 2mn + n2 n2 - mn

3. Find the values of x for which 18 + x2 + 1 is undefined.

 x x2 - 9

4. Two parallel chords lie on opposite sides of the center of a circle of radius 13cm. Their lengths are 10cm and 24cm. what is the distance between the chords?

PART III

( 30 marks)

Answer ANY TWO questions from this part.

1. Find the inverse of the matrix M , where M = 3 2

 5 4

 Hence solve the matrix equation MX = C in which X = x and C = 1

 y 3

2. Find the coordinates of the points on the graph of y = 3x3 + 18x2 + 24x + 5 at which the gradient

 is -3.

3. After t seconds a moving body has a velocity of v m/s, where v = 5t2 – 12t + 7.

 Calculate the acceleration after 2 seconds.

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**CLASS:** SSTWO **SUBJECT:** MATHEMATICS **DURATION:** 2Hour 30mins

 **EXAM:**  FIRST TERM EXAM **SESSION**: 2018/2019 SESSION

***Instruction: Attempt all the questions in this part***

1. If 2m × 5n = 200 , find the values of m and n . (a) m=2 , n=3 (b) m=3 , n=2 (c) m=2 , n=5 (d) m=5, n=2

2. Evaluate, $\sqrt{0.00036}$ , correct to two significant figures, (a) 0.01 (b) 0.018 (c) 0.019 (d) 0.02

3. M={3,9,11,13} and N={3,7,9,15} are subsets of the universal set U={2,3,7,9,11,13,15}. Find n(M$∪$N)ꞌ

 (a) 1 (b) 6 (c) 7 (d) 8

4. If x is a number such that x > 1, arrange (1-x), (1+x), (1-x2) and (1+x2) in ascending order of magnitude

 (a) (1-x), (1+x), (1-x2), (1+x2) (b) (1-x2), (1-x), (1+x), (1+x2) (c) (1+x), (1-x), (1-x2), (1+x2)

 (d) (1+x2), (1+x), (1-x), (1-x2)

5. If 312four + 52n = 96ten , find n. (a) 8 (b) 7 (c) 6 (d) 5

6. An alloy is made up of 114g of brass and 126g of iron. Find the ratio of the weight of brass to the weight of the alloy. (a) 19 : 20 (b) 21 : 19 (c) 19 : 40 (d) 20 : 19

7. Solve the equation : $^{x}/\_{3}$ - 4 = $^{x}/\_{5}$ , (a) 10 (b) 30 (c) 60 (d) 120

8. Find the product of (x-2) and (x+4). (a) x2 + 2x + 8 (b) x2 - 2x + 8 (c) x2 - 2x - 8 (d) x2 + 2x - 8

9. Find the truth set of the inequality 3x – 4 < 5x + 4.(a){x:x> -4}(b) {x:x< -4} (c) {x:x> 4} (d) {x:x< -4}

10. Simplify: $\frac{1}{a-b}$ + $\frac{2}{a}$ . (a) $\frac{3a-2b}{a(a-b)}$ (b) $\frac{a-2b}{a(a-b)}$ (c) $\frac{a+2b}{a(a-b)}$ (d) $\frac{3a+2b}{a(a-b)}$

11. If P = -3 and q = 5, evaluate P2 – Pq2 – P3. (a) 54 (b) 75 (c) 93 (d) 111

12. Factorize : 6n2 + 3an – 3a2 . (a) (2n-a)(n+a) (b) (a-2n)(n+a) (c) 3(a-2n)(n+a) (d) 3(2n-a)(n+a)

13. The average of two numbers is 10 and one-third of their difference is 6. Find the smaller number.

 (a) 1 (b) 7 (c) 13 (d) 15

14. A straight line was drawn on the graph of y = 2x2 + 2x +1 to solve the equation 2x2 + x - 2= 0. What is the equation of the straight line $?$ (a) y = 3- x (b) y = x – 3 (c) y = x + 3 (d) y = - x – 3

15. The ratio of the height of a triangle to the base is 3 : 2 and its area is 30 cm2. Calculate, correct to 2 decimal places, the height of the triangle. (a) 6.70 cm (b) 6.71 cm (c) 9.48 cm (d) 9.49 cm

16. The volume of a cuboid of height 3cm is 180 cm3. If the length of the base is 7cm longer than its width, find the width. (a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm

17. The perimeter of a square and the circumference of a circle are each equal to 22 cm. Find the positive difference between their areas. (a) 8.25 cm2 (b) 14.50 cm2 (c) 29.00 cm2 (d) 67.75 cm2

18.

 In the triangle PQS, PR is perpendicular to SQ, /PS/ = /PQ/, /SQ/ = 16 cm and /PR/ = 15 cm. Calculate the perimeter of $∆$PQS. (a) 40 cm (b) 50 cm (c) 60 cm (d) 70 cm

19. Which of the following is true of similar triangles ? (a) They have equal areas (b) Their corresponding sides are proportional (c) They have equal sides (d) They are congruent

20. Find the value of x in the diagram. (a) 300 (b) 400 (c) 500 (d) 600

21. Which of the following quadrilaterals has/ have the diagonals intersecting at right angles?

 I. Rectangle II. Trapezium III. Rhombus

 (a) I only (b) I and III only (c) III only (d) I and II only

22.

 In the diagram, < PQR = (x+15)0 , < PRQ = (2x-10)0 and < QPR = (6x+40)0. Find the largest angle.

 (a) 1100 (b) 1200 (c) 1300 (d) 1400

23. If sin x = 3/5 and x is acute, find the value of cos x0 (a) 4/3 (b) 4/5 (c) 3/4 (d) 3/5

24. A vertical pole 10 m high casts a shadow 4 m long on the ground. Find, correct to one decimal place, the angle of elevation of the sun. (a) 11.30 (b) 31.80 (c) 45.50 (d) 68.20

25. The following are measures of central tendency **except** (a) mean deviation (b)mean (c)median (d)mode

26. The height, in cm, of 15 mango seedlings are: 23, 24, 20, 18, 23, 21, 21, 21, 20, 19, 25, 21, 22, 21, 18

 What is the median height? (a) 18 cm (b) 19 cm (c) 21 cm (d) 23 cm

27. The mean of 6, 7, 11, y and 22 is 12. Find the value of y. (a) 10 (b) 11 (c) 13 (d) 14

28. Which of these points satisfies the inequality x + y > 6 ? I. (2,3) II. (4.2) III. (10,-2) IV. (5, -3)

 (a) IV only (b) III only (c) II only (d) I only

29. Simplify : $\frac{2}{3}$ of $\frac{3}{8}$ - $\frac{1}{6}$ (a) $\frac{5}{12}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{1}{12}$

 $\frac{1}{2}$ + $\frac{1}{8}$ ÷ $\frac{1}{4}$

30. The diagonals of a rhombus are 10 cm and 24 cm. Calculate the length of aside.

(a)13cm (b)22cm (c)26cm (d)30cm

31. An interior angle of a regular polygon is 4 times its exterior angle. Find the number of sides of the polygon. (a) 4 (b) 5 (c) 8 (d) 10

32. Solve the equation x2 - 2$\sqrt{3}$ x + 3 = 0

 (a) x = $\sqrt{3}$ , x = $\sqrt{3}$ (b) x = 2 $\sqrt{3}$ , x = -2$\sqrt{3}$ (c) x = $\sqrt{3}$ + $\frac{3}{2}$, x = $\sqrt{3}$ – $\frac{3}{2}$ (d) x = $\sqrt{3}$, x = - $\sqrt{3}$

33. What value of k makes the expression y2 + $\frac{y}{2}$ + k a perfect square? (a) $\frac{1}{16}$ (b) $\frac{1}{8}$ (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

34. A trader borrowed D3,000.00 from a money lender at a simple interest rate o 2$ \frac{1}{2}$ % per annum. After 8 months, he paid back both the interest and principal. How much did the trader pay back altogether?

 (a) D3500.00 (b) D3250.00 (c) D3150.00 (d) 3050.00

35. How many minutes will it take to cover a distance of 8.1km at an average speed of 5ms-1

 (a) 16.2 min (b) 22.3 min (c) 27.0 min (d) 40.5 min

36. Find the sum to infinity of the GP 9 – 3 + 1 - …… (a) 6 (b) 6 $\frac{3}{4}$ (c) 12 (d) 27

37. Express 4164.086 correct to 2 s.f (a) 42 (b) 4100 (c) 4164.08 (d) 4200

38. If log103 = 0.477, evaluate log1027 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 2.52

39. The first term of an arithmetic progression is 8. If the tenth term is double the second term, the common difference is …… (a) 4/3 (b) 8/7 (c) 1 (d) 7/8

40. A student got 78 marks out of a possible 120. Express the student’s mark as a percentage.

 (a) 58% (b) 65% (c) 68% (d) 78%

PART B

***Instruction: Attempt question ONE and ANY other THREE in this part.***

1. (a) Copy and complete the table of values for the relation y = 2x2 – 9x – 1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X |  -1 |  0 |  1 |  2 |  3 |  4 |  5 |  6 |
| y |  | -1 | -8 | -11 |  |  |  | 17 |

(b) Using scales of 2 cm to 1 unit on the x-axis and 2 cm to 5 units on the y-axis, draw the graph of

y = 2x2 – 9x – 1. for -1≤ x ≤ 6.

 (c) Use your graph to find the :

 (i) roots of the equation 2x2 – 9x = 4, correct to one decimal place.

 (ii) gradient of the curve y = 2x2 – 9x – 1 at x = 3

2. (a) 1, 4/3, 5/3, ----- is an AP. Find the:

 (i) 10th term (ii) Sum, up to the 16th term

 (b) ABC is a triangle right angled at B and D is a point on |AB|. Calculate /AD/

3. The diagram below shows a sector of a circle of radius 10cm which subtends an angle of 800 at the centre O of the circle. If C and D are the midpoints of /OA/ and /OB/ respectively, calculate, correct to the nearest whole number, the (i) area (ii) perimeter

of the shaded region (Take π = 22/7 )

4. Use tables to evaluate 32511/2 × (0.3125)3 and give your answer to 3 s.f

 (0.0453 × 2.321)2

5. A square is 11cm by 11cm. A student measures a side of the square as 10.9 cm and uses the measurement to calculate the area of the square. Find the percentage error in:

 (a) the length of the side. (b) the area of the square.

**ASꞌSALAM UNIQUE COLLEGE.**

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**CLASS:** SSS THREE **SUBJECT:** MATHEMATICS **DURATION:** 1hr 30min

**TERM:** FIRST **EXAM:**  PRE-MOCK **SESSION :** 2018/2019 SESSION

***PAPER:*** *2*

*Instruction: Answer all the questions.*

1. Evaluate 2022three - 1122three. A. 21120 B. 21121 C. 21112 D. 21011

2. If y = 23five + 101three , find y, leaving your answer in base two. A. 1110 B. 10111 C. 11101 D. 111100

3. Given that sin (5x - 28) 0 = cos (3x - 50) 0, 0 < x < 900, find the value of x. A. 140 B. 210 C. 320 D. 390

4. Solve for t in the equation $\frac{3}{4}$ t + $\frac{1}{3}$ (21 - t) = 11. A. $\frac{9}{13}$ B. 3 $\frac{9}{13}$ C. 5 D. 9$\frac{3}{5}$

5. A school girl spends $\frac{1}{4}$ of her pocket money on books and $\frac{1}{3}$ on dress. What fraction remains?

 A. $\frac{5}{6}$ B. $\frac{7}{12}$ C. $\frac{5}{12}$ D. $\frac{1}{6}$

6. In the diagram, <RPQ = <QRY, <PQR = <RYQ, |QP| = 8cm, |QY| = 4cm and |RY| = 5cm. Find |QR|.

A. 2.0cm B. 2.5cm C. 6.4cm D. 10.0cm

7. Find the value of x in the diagram.

 A. 100 B. 280 C. 360 D. 440

8. There are m boys and 12 girls in a class. What is the probability of selecting at random a girl from the class? A. $\frac{m}{12}$ B. $\frac{12}{m}$ C. $\frac{12}{m+12}$ D. $\frac{m}{m+12}$

9. Simplify 7$\frac{1}{2}$ – (2$\frac{1}{2}$ + 3) ÷ 16$\frac{1}{2}$ and correct your answer to the nearest whole number.

 A. 33 B. 8 C. 7 D. 0

10. The angle of elevation of the top of a tower from a point on the ground which is 36m away from the foot of the tower is 300. Calculate the height of the tower. A. 62.35m B. 20.78m C. 18.00 D. 10.39m

11. Find the area of a rectangle of length 4cm and whose diagonal is 8cm. (Leave your answer in surd form)

 A. 8$\sqrt{3}$ cm2 B. 12$\sqrt{3}$ cm2 C. 16$\sqrt{2}$ cm2 D. 16$\sqrt{3}$ cm2

12. Given that x + y = 7 and 3x – y = 5, evaluate $\frac{y}{2}$ – 3. A. -1 B. 1 C. 3 D. 4

13. In the diagram, POQ is the diameter of the circle centre O, calculate <QRS

 A. 350  B. 700 C. 1000 D. 1250

14. If ( $\frac{ 1}{4} $)(2 - y) = 1, find y. A. -2 B. - $\frac{1}{2}$ C. $\frac{1}{2}$ D. 2

15. Calculate the total surface area of a cupboard which measures 12cm by 10 cm by 8cm

 A. 1920 cm2 B. 592 cm2 C. 296 cm2 D. 148 cm2

16. If $\frac{x}{a+1}$ + $\frac{y}{b}$ = 1, make y the subject of the relation. A.$ \frac{b(a+1-x)}{a+1}$ B. $\frac{a+1}{b(a-x+1)}$ C. a$\frac{b-x+1}{b+1}$ D. $\frac{1}{a(b-x+1)}$

17. If log q P = r, express P in terms of q and r. A. P = qr B. P = rq C. P = r/q D. P = qr

18. Find the next two terms of the sequence 1, 5, 14, 30, 55, …, …, A.61,110 B.67,116 C.81,140 D. 91,140

19. Each interior angle of a regular polygon is 1080. How many side has it? A.5 B.7 C.9 D.14

20. Solve the equation 10 – 3x – x2 = 0 A. x = 2 or – 5 B. x = -2 or 5 C. x = -1 or 10 D. x = 2 or 5

21. Find, correct to two decimal places, the mean of 9,13,16,17,19,23,24 A.23.00 B.17.29 C.16.50 D.16.33

22. In the diagrams, $∆$XYZ is similar to $∆$PRQ, |XY| = 5cm, |XZ| = 3.5 cm and |PR| = 8 cm. Find |PQ|.

 A. 5.6 cm B. 11.2 cm C. 11.4 cm D. 28.0 cm

23. Factorise 27p2x2 – 48y2.

A. 9(3px – 4y)2 B. 3(3px–4y)(3px–4y) C. 9(px-4y)(3px+4y) D. 3(3px-4y)(3px+4y)

24. What is the volume of a solid cylinder of diameter 7cm and height 7 cm? (Take $π$ = 22/7)

 A. 38.5 cm3  B. 77 cm3 C. 269.5 cm3 D. 1078 cm3

25. Find the sum of the roots of the equation 2x2 + 3x – 9 = 0. A. -18 B. -6 C. - $\frac{9}{2}$ D. - $\frac{3}{2}$

26. Given that $\in $ = {1, 2, 3,……,10}, P = {x : x is prime} and Q = { y : y is odd}, find P **ꞌ** $∩$Q **ꞌ**

 A. {2} B. {1, 9} C. {3, 5, 7} D. {4, 6, 8, 10}

27. In the diagram, KS is a tangent to the circle centre O at R and <ROQ = 800. Find < QRS.

 A. 900 B. 800 C. 500 D. 400

28. Find the mean deviation of 6, 7, 8, 9, 10. A. 1.2 B. 1.5 C. 2 D. 8

29. A point X is on the bearing 3420 from a point Y. What is the bearing of Y from X?

 A. 3420 B. 2520 C. 1980 D. 1620

30. In the diagram, O is the centre of the circle where OS//QR and < SOR = 350. Find the value of < QPR.

 A. 350 B. 450 C. 550 D. 700

31. Find the average of the first four prime numbers greater than 10. A. 20 B. 19 C. 17 D. 15

32. Given that $\sqrt{128}$ + $\sqrt{18}$ - $\sqrt{k}$ = 7$\sqrt{2}$ , find k A. 8 B. 16 C. 32 D. 48

33. In the diagram, PQRW is a circle. Lines PW and QR are produced to meet at M, where < WMR = 300 and |WM| = |MR|. Find the value of x.

 A. 100 B. 250 C. 350 D. 600

 The table below gives the marks scored by a group of students in a test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | 5 |
|  Frequency | 1 | 2 | 7 | 5 | 4 | 3 |

 Use the table to answer questions 34 and 35

34. What is the median mark? A. 1 B. 2 C. 3 D. 4

35. What is the probability of selecting a student from the group that scored 2 or 3?

 A. $\frac{ 1}{11}$ B. $\frac{ 5}{22}$ C. $\frac{ 7}{22}$ D. $\frac{ 6}{11}$

36. Find the range of values of x for which $\frac{ x+2}{4}$ - $\frac{ x+1}{3}$ > $\frac{ 1}{2}$. A. x > 4 B. x > -4 C. x < 4 D. x < - 4

37. A boy walks 800 m in 20 minutes. Calculate his average speed in km per hour.

 A. 2.4 B. 4 C. 16 D. 24

38. Simplify $\frac{ 2}{a+b}$ - $\frac{ 1}{a-b}$ A. $\frac{ 3}{a+b}$ B. $\frac{ a-3b}{a - b}$ C. $\frac{ 3a - b}{a - b}$ D. $\frac{ a - 3b}{a + b }$

39. The diagram is a circle centre O. find the value of x

 A. 300 B. 500 C. 610 D. 760

Use the graph to answer questions 40 and 41

40. What are the roots of the equation x2 + 3x – 4 = 0 ? A. 1,4 B. –1,- 4 C. -1,4 D. -4,1

41. The values of x when y = 3 are approximately A. -4.7and1.4 B. -4.6and1.5 C. -3.6and0.4 D.-3.6and1.5

42. Which of the following quadratic equations has -1/2 and ¾ as its root?

A. 8x2 + 11x – 3 = 0 B. 8x2 - 11x – 3 = 0 C. 8x2 + 2x – 3 = 0 D. 8x2 - 2x – 3 = 0

43. The locus of a point which moves in a plane such that it is equidistant from two fixed points X and Y is

 A. the perpendicular bisector of the line segment XY B. a line parallel to the line segment XY

 C. a circle with XY as diameter D. the line perpendicular to the line segment XY

44. Given that p α 1/$\sqrt{r}$ and p = 3 when r = 16, find the value of r when p = 3/2 A. 48 B. 64 C. 72 D. 324

45. Which of the following is/are true? In a plane, the locus of points:

i. equidistant from a straight line is a circle radius d where d is the distance between the point and the straight line ii. equidistant from two given points P and Q is a circle of radius |PQ| iii. equidistant from two points is the perpendicular bisector of the line joining the two points

A. I only B. ii only C. iii only D. i, ii, and iii

46. The sides of two cubes are in the ratio 2 : 5. What is the ratio of their volume?

 A. 4:5 B. 8 : 15 C. 6 : 125 D. 8 : 125

47. Given that p = 2, q = -5 and r = -4, evaluate 3p2 – q2 – r3. A. 101 B. 77 C. 51 D. -27

48. A Cooperative Society charges an interest of 5$\frac{1}{2}$ % per annum on any amount borrowed by its members. If a member borrows N125,000, how much does he pay back after one year?

 A. N136,875 B. N131,875 C. N128,750 D. N126,250

49. A bag contains 3 red and 2 white identical balls. If 2 balls are picked at random from the bag, one after the other and without replacement, find the probability that they are of different colours.

 A. 36/625 B. 16/625 C. 12/25 D. 13/25

50. A point on the ground is 5m away from the foot of a vertical wall 7m high. Calculate, correct to the nearest degree, the angle of depression of the point from the top of the wall.

 A. 360  B. 440 C. 460  D. 540

 **ASꞌSALAM UNIQUE COLLEGE.**

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**CLASS:** SSS THREE **SUBJECT:** MATHEMATICS **DURATION:** 1hr 30min

**TERM:** FIRST **EXAM:**  PRE-MOCK **SESSION :** 2018/2019 SESSION

***PAPER:*** *1*

PART 1 (40 marks) :

 Answer all the five questions in this part. All questions carry equal marks.

1. (a) Two children shared an amount of money in the ratio 3/4 : 2/4. If the smaller share was GH 25.00, how much was shared between them?

 (b) A box contains 5 red, 3 green and 4 blue balls of the same size. If a boy picks two balls from the box one after the other without replacement, what is the probability that both balls are red?

2. (a) i. Solve the inequality : $\frac{1}{2}$ x - $\frac{5}{6}$ (x + 2) ≤ 1 + x ii. Illustrate the solution on a number line

 (b) ii. When the price of an apple increased by N5.00, 18 apples cost N60.00 more than 20 apples before the increase. Find the new price of an apple.

3. (a) In a right angled triangle, sin x = 3/5. Evaluate 5( cos x )2 – 3.

 (b) The angle of elevation of the top of a vertical pole from a point 63 m east of the base of the pole is 300. From another point due west of the pole, the angle of elevation of the top is 600.

 (i) Draw a sketch diagram to illustrate the information.

 (ii) Calculate, correct to three significant figures, the distance of the second point from the baseof the pole.

4. (a) Find the value of X if X3five – 14five = 2X five

 (b)

The diagram is a circle passing through the points A, B, C, and D such that AC and BD meet at a point E inside the circle. If < DAC = 270 , < ABD = 540 and < ACB = 630, find:

 i. < CAB ii. < AEB

5. (a) The diagonals of a rhombus are 14 cm and 9 cm. Calculate, correct to the nearest centimeter, the perimeter of the rhombus.

 (b) The cross section of a rectangular tank measures 1.2 m by 0.9 m. It contains water to a depth of 0.4m. If a cubical block of side 50 cm is lowered into the tank, calculate, correct to 2 significant figures, the rise in the water level (in metres).

PART II (60 marks) Answer five questions only from this part. All questions carry equal marks.

6. (a) In a class of 50 students, 30 offered History, 15 offered History and Geography while 3 did not offer

 any of the two subjects.

 (i) Represent the information on a Venn diagram.

(ii). Find the number of candidates that offered:

 (A) History only, (B) Geography only.

(b) A trader sold an article at a discount of 8 % for N828.00. If the article was initially marked to gain

 25%, find the

 (i) cost price of the article (ii) discount allowed.

7. (a) Copy and complete the following table for the relation y = $\frac{1}{2}$ x(x - 6) for -2 ≤ x ≤ 8.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| y | 8 |  | 0 |  | -4 |  |  |  | 0 |  |  |

(b) Using scales of 2cm to 1 unit on the x – axis and 2 cm to 2 units on the y – axis, draw the graph of

 the relation y = $\frac{1}{2}$ x(x - 6) for -2 ≤ x ≤ 8.

(c) Use the graph to find the:

 (i) range of values of x for which y is negative, (ii) minimum value of y

 (iii) roots of the equation y = $\frac{1}{2}$ x(x - 6) = 5

8. Using ruler and a pair of compassese only:

 (a) construct a triangle PQR with |PQ| = 10 cm, < QPR = 900 and < PQR = 300,

 (b) (i) construct l, the locus of all points equidistant from PR and QR

 (ii) locate M, the point where l intersects with PQ

 (c) (i) with M as centre and radius MP, draw a circle

 (ii) calculate the area of the circle, correct to one decimal place. (Take $π$ = 22/7)

9.

OABCD is a right pyramid with a rectangular base ABCD. Its vertical height is OG. If |AB| = 6 cm, |BC| = 8 cm and each slant edge is 13 cm,

(a) calculate, correct to one decimal place, the (i) vertical height |OG| (ii) angle between a slant edge and the base ABCD

 (iii) angle between the triangle OAB and the base ABCD

(b) find the volume of the pyramid.

10. The table gives the distribution of marks for 360 candidates who sat for an examination.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Marks (%) | 0 - 9 | 10 - 19 | 20 - 29 | 30 - 39 | 40 - 49 | 50 - 59 | 60 - 69 | 70 - 79 | 80 - 89 |
| Number of candidates | 20 | 48 | 60 | 72 | 80 | 40 | 25 | 10 | 5 |

 (a) Draw a cumulative frequency curve for the distribution.

 (b) Use your graph to estimate the semi–interquartile range.

 (c) If the minimum mark for distinction is 75%, how many candidates passed with distinction?

11. (a) A ship P is 3 km due east of a harbor. Another ship Q is also 3 km from the harbor but on a

 bearing of 0420 from the harbour.

 (i) Find the distance between the two ships

 (ii) Find the bearing of ship Q from ship P

 (b) A motorist travelled 300 km at an average speed of 75 km/h and returned at an average speed of

 v km/h. If his average speed for the whole journey is 60 km/h, find v

12. (a) The second, fourth and sixth terms of an Arithmetic Progression (A.P) are x – 1, x + 1 and 7

 respectively. Find the: (i) common difference (ii) first term (iii) value of x

 (b) A spherical bowl of radius r cm is one-quarter full when 6 litres of water is poured into it.

 Calculate, correct to 3 significant figures, its diameter. (Take $π$ 22/7)

**ASꞌSALAM UNIQUE COLLEGE.**

Along New garage- Apata Express road, Oluyole Extension, Ibadan

**CLASS:** SSS THREE **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  MOCK EXAM **SESSION**: 2018/2019 SESSION

 **PAPER 1**

**ASꞌSALAM UNIQUE COLLEGE.**

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**CLASS:** SSS THREE **SUBJECT:** MATHEMATICS **DURATION:** 2Hour 30mins

 EXAM: FIRST TERM **SESSION**: 2020/2021 SESSION

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**CLASS:** SSS TWO **SUBJECT:** MATHEMATICS **DURATION:** 2Hour 30mins

 EXAM: FIRST TERM **SESSION**: 2020/2021 SESSION

8. (a) Evaluate without using tables, 3log 2 + log20 – log 1.6

(b) Simplify 2$\sqrt{135}$ - 2$\sqrt{60}$ + $\sqrt{15}$ - $\sqrt{240}$

9. Use the matrix method to solve the pair of simultaneous equations.

 6c – d = -2 and 10c – 3d = -10

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**CLASS:** SSTWO **SUBJECT:** MATHEMATICS **DURATION:** 2Hour 30mins

 **EXAM:**  SECOND TERM EXAM **SESSION**: 2018/2019 SESSION

1. Evaluate: ( 0.13 )3 correct to three significant figures. (a) 0.00219 (b) 0.00220 (c) 0.00300 (d) 0.00390

2. Simplify : 11011 two – 1101two (a) 101000two (b) 1100two (c) 1110two (d) 1011two

3. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y4,

4. Simplify : x – 4 - x – 3 (a) x - 18 (b) x – 6 (c) x – 18 (d) x – 6

 4 6 12 12 24 24

5. Given that y = 1 – 2x , find the value of x for which y is undefined. (a) 1 (b) ¾ (c) -3/4 (d) -3

 4x – 3

6. A fair coin is tossed three times. Find the probability of getting two heads and one tail.

 (a) 1/2 (b) 3/8 (c) ¼ (d) 1/8

7. If 30% of y is equal to x, what in terms of x, is 30% of 3y? (a) x/9 (b) x/3 (c) x (d) 3x

8. A baker used 40% of a 50kg bag of flour. If 1/8 of the amount used was for cake, how many kilograms of flour was used for cake? (a) 2 $\frac{1}{2}$ (b) 6 $\frac{1}{4}$ (c) 15 $\frac{1}{8}$ (d) 17 $\frac{1}{2}$

9. If tan y = 0.404 , where y is acute, find cos 2y. (a) 0.035 (b) 0.719 (c) 0.808 (d) 0.927

10. What must be added to x2 – 3x to make it a perfect square? (a) 9/4 (b) 9/2 (c) 6 (d) 9

11. Given that (2x – 1)(x + 5) = 2x2 – mx – 5, what is the value of m? (a) 11 (b) 5 (c) -9 (d) -10

12. If the simple interest on a sum of money invested at 3% per annum for 2 $\frac{1}{2}$ years is N123, find the principal. (a) N676.50 (b) N820 (d) N1,640 (d) N4,920

13. If x + y = 12 and 3x – y = 20, find the value of 2x – y. (a) 8 (b) 10 (c) 12 (d) 15

14. A conical water-jug is 7cm in diameter and 6cm deep. Find the volume of water it can hold. (Take $π$ = 22/7) (a) 22 cm3 (b) 44 cm3 (c) 77 cm3 (d) 308 cm3

15. Find the nth term of the sequence 5, 10, 20, 40, 80, ……

(a) 5 $×$ 2n +1 (b) 2 $×$ 5n -1 (c) 5 $×$ 2n -1 (d) 5 $×$ 5 n -1

16. The wheel of a tractor has diameter 1.4m. What distance does it cover in 100 complete revolution?

 (Take $π$ = 22/7) (a) 140 m (b) 220 m (c) 280 m (d) 440 m

17. The values of three angles at a point are 3y – 450, y + 250, and y0 Find the value of y.

 (a) 400 (b) 580 (c) 680 (d) 760

18. A rectangular carpet 2.5 m long and 2.4 m wide covers 5% of a rectangular floor. Calculate the area of the floor. (a) 30 m2 (b) 57 m2 (c) 120 m2 (d) 225 m2

19. A book seller gives 5% discount to a customer who pays cash. What is the marked price of a book for which the customer pays N475.00? (a) N450 (b) N500 (c) N1000 (d) N400 (e) N520

20. If y varies inversely as the cube root of x and y = 4 when x = 27, find y when x = 8

 (a) 6 (b) 4 (c) 3 (d) 2 (e) 5

21. If x = 3.5 and y = 1.5, evaluate (2x + y)(x2 – y2). (a) 117 (b) 96 (c) 85 (d) 80 (e) 73

22. Factorize: 16x2y – 24x3y3. (a) 8x2y(2–3xy2) (b) 4x2(4y–6xy3) (c) 2xy(8x-12x2y2) (d)8(2x2y-3x3y3)

23. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y

24. Solve the equation: 7x2 – 3x – 10 = 0 (a) -1, 10/7 (b) 1, -10/7 (c) -1, -10/7 (d) 1, 10/7 (e) 1, 7/10

25. A rectangular tank 82cm long, 37cm wide and 75cm deep has the same volume as a cylindrical tank. If the radius of the cylindrical tank is 30cm, calculate its height. (Take π = 3.140)

 (a) 83.00cm (b) 80.52cm (c) 52.80cm (d) 50.80cm (e) 102cm

26. In an octagon, three of the interior angles are x0 each. Each of the remaining five interior angles is (16 + x). Find the value of x. (a) 1020 (b) 1050 (c) 1200 (d) 1250 (e) 1300

27. Calculate the perimeter of a quadrant of a circle, radius 10.5cm. (Take π = 22/7)

 (a) 37.5cm (b) 36.0cm (c) 32.5cm (d) 27.0cm (e) 35.7cm

28. Convert 22014 to a base ten numeral. (a) 128 (b) 137 (c) 161 (d) 165 (e)182

29. Given that tanα = 21/20, find the value of α. (a) 0.0170 (b) 0.0180 (c) 43.600 (d) 46.400 (e) 0.170

30. Find the sum of all the multiples of 9 between 1 and 250.

 (a) 3666.7 (b) 3597.2 (c) 3500.0 (d) 3496.5 (e) 3402.0

31. A student got 78 marks out of a possible 120. Express the student’s mark as a percentage.

 (a) 58% (b) 65% (c) 68% (d) 72% (e) 78%

32. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

33. Given that a = 2/3 and b = -6, evaluate ab – b/a. (a) 0 (b) 5 (c) 8 (d) 9 (e) 13

34. Find the sum to infinity of the GP 9 – 3 + 1 - ………. (a) 6 (b) 6$ ^{3}/\_{4}$ (c) 13$ ^{1}/\_{2}$ (d) 12 (e) 27

35. Express 4164.086 correct to 2s.f. (a) 42 (b) 4100 (c) 4164.08 (d) 4164.09 (e) 4200

36. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

37. Find the range of the following numbers 21, 11, 19, 16, 28, 14, 18, 23, 25, 09. (a) 11 (b)16 (c)18 (d)19

38. If the bearing of X from Y is 2250 . What is the bearing of Y from X ? (a) 0450 (b) 0600 (c) 1800 (d) 2200

39. Find the sum of the infinite series 1 + a + a2 + a3 +….., given that -1< a < 1

(a) 1 - an (b) a (c) 1 (d) 1

 1 - a 1 – a 1 – a a - 1

40. By how much is 246 seven less than 573 eight, leaving your answer in base 10 ? (a) 132 (b) 247 (c) 379 (d) 511

PART B

Attempt ANY FOUR questions in this part. All questions carry equal marks

1. (a) Show the region on the graph which satisfies the inequalities:

 4x – y $\leq $ 12, 2x + y $\leq $8 , x = 1, y $\geq $ 0

 (b) 27x – y = 243 , 8x + y = 128.

2. The width of a rectangle is 4cm less than the length. If the area of the rectangle is 192cm2, find the :

 (i) Perimeter of the rectangle.

(ii) Angle which the diagonal makes with the length, correct to the nearest 0.10.

3, (a.)

In the figure above, TP is a tangent to the circle TRQ with centre O. <TPO = 280 and < ORQ = 150, find (i) < RQT (ii) < QTO.

 (b.) Factorise : 4x2 – 8x – 5

4. (a) If (Ytwo)2 = 221three – 220four, find the value of Y.

(b) In a class of 64 students, each student offers either Physics or Mathematics or both. If 50 students offer mathematics and the number of students offering Mathematics only is twice the number of students offering Physics only, how many students offer both subjects?

5. (a) Copy and complete the following table for the relation y = $\frac{1}{2}$ x (x - 6) for -2 $\leq $ x $\leq $ 8.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  X |  -2 |  -1 |  0 |  1 |  2 |  3 |  4 |  5 |  6 |  7 |  8 |
|  Y |  8 |  |  0 |  |  -4 |  |  |  |  0 |  |  |

(b) using scales of 2cm to 1unit on the x- axis and 2cm to 2 units on the y-axis, draw the graph of the relation y = $\frac{1}{2}$ x (x - 6) for -2 $\leq $ x $\leq $ 8.

(c) Use the graph to find the: (i) range of values of x for which y is negative,

 (ii) minimum value of y (iii) root of the equation $\frac{1}{2}$ x (x - 6) = 5

 (iv) write down the equation of the line of symmetry of the curve

 (v) find the gradient of the curve at the point where x = 2.

6. (a) City A is 300km due east of city B. City C is 200km on a bearing of 1230 from city B. How far

 is it from C to A?

 (b) Find the value of x for which the expression below is undefined

 18 + x2 + 1

 x x2 - 9

 **ASꞌSALAM UNIQUE COLLEGE.**

***Along New garage- Apata Express road, Oluyole Extension, Ibadan***

**CLASS:** SS TWO **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  THIRD MID-TERM EXAM **SESSION**: 2020/2021 SESSION

*Instruction: Attempt all the questions in part A and two in part B. Question 3 of part B is*

 *compulsory*

1. A money lender collects £200 simple interest on a capital after 2years at 5%. Calculate the capital invested. (a) £1,000.00 (b)£2,000.00 (c)£3,000.00 (d)£4,000.00 (e)£1,500.00

2. A book seller gives 5% discount to a customer who pays cash. What is the marked price of a book for which the customer pays N475.00? (a) N450 (b) N500 (c) N1000 (d) N400 (e) N520

3. If y varies inversely as the cube root of x and y = 4 when x = 27, find y when x = 8

 (a) 6 (b) 4 (c) 3 (d) 2 (e) 5

4. The nth term of a sequence is 22n (-1/2) n .Find the third term. (a) -512 (b) -64 (c) -32 (d) -8 (e) 0

5. If x = 3.5 and y = 1.5, evaluate (2x + y)(x2 – y2). (a) 117 (b) 96 (c) 85 (d) 80 (e) 73

6. Factorize: 16x2y – 24x3y3. (a) 8x2y(2–3xy2) (b) 4x2(4y–6xy3) (c) 2xy(8x-12x2y2) (d)8(2x2y-3x3y3)

7. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y

8. If x+2y = 7 and 4x+11y = 34, by how much is 3y less than 10? (a) 3 (b) 4 (c) 5 (d) 7 (e) 6

9. Solve the equation: 7x2 – 3x – 10 = 0 (a) -1, 10/7 (b) 1, -10/7 (c) -1, -10/7 (d) 1, 10/7 (e) 1, 7/10

10. A rectangular tank 82cm long, 37cm wide and 75cm deep has the same volume as a cylindrical tank. If the radius of the cylindrical tank is 30cm, calculate its height. (Take π = 3.140)

 (a) 83.00cm (b) 80.52cm (c) 52.80cm (d) 50.80cm (e) 102cm

11. A chord PR of a circle, Centre O, is 20cm long. If PRO = 1200 , calculate the radius of the circle.

 (a) 16.0cm (b) 13.0cm (c) 11.5cm (d) 11.2cm (e) 12,0cm

12. In an octagon, three of the interior angles are x0 each. Each of the remaining five interior angles is (16 + x). Find the value of x. (a) 1020 (b) 1050 (c) 1200 (d) 1250 (e) 1300

13. Simplify: 6 $^{1}/\_{3}$ - 2 $^{3}/\_{4}$ + 1 $^{1}/\_{6}$ . (a) 4 $^{3}/\_{4}$ (b) 4 $^{1}/\_{5}$ (c) 2 $^{1}/\_{4}$ (d) $^{11}/\_{30}$ (e) 6 $^{5}/\_{8}$

14. Calculate the perimeter of a quadrant of a circle, radius 10.5cm. (Take π = 22/7)

 (a) 37.5cm (b) 36.0cm (c) 32.5cm (d) 27.0cm (e) 35.7cm

15. Express the sum of 10-2 and 10-3 in standard form. (a)1.0×10-6 (b) 1.0×10-4 (c) 1.1×10-3 (d) 1.1×10-2 (e)0

16. Convert 22014 to a base ten numeral. (a) 128 (b) 137 (c) 161 (d) 165 (e)182

17. Given that tanα = 21/20, find the value of α. (a) 0.0170 (b) 0.0180 (c) 43.600 (d) 46.400 (e) 0.170

18. Find the sum of all the multiples of 9 between 1 and 250.

 (a) 3666.7 (b) 3597.2 (c) 3500.0 (d) 3496.5 (e) 3402.0

19. Express 0.0005854 in standard form.

 (a) 5.854×104 (b) 5.854×103 (c) 5.854×10-1 (d) 5.854×10-3 (e) 5.854×10-4

20. A student got 78 marks out of a possible 120. Express the student’s mark as a percentage.

 (a) 58% (b) 65% (c) 68% (d) 72% (e) 78%

21. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

22. Add 54eight and 67eight, giving your answer in base eight. (a) 1118 (b) 1218 (c) 1238 (d) 1338 (e) 1438

23. Express 60500 in standard form. (a)6.05×10-4 (b)6.05×10-3 (c) 6.05×104 (d)6.05×105 (e) 6.05×106

24. Given that a = 2/3 and b = -6, evaluate ab – b/a. (a) 0 (b) 5 (c) 8 (d) 9 (e) 13

25. Find the sum to infinity of the GP 9 – 3 + 1 - ………. (a) 6 (b) 6$ ^{3}/\_{4}$ (c) 13$ ^{1}/\_{2}$ (d) 12 (e) 27

26. Find the value of 2x – y if x + y = 8 and 4x – y = 22. (a) 2 (b) 4 (c) 6 (d) 8 (e) 10

27. Find the sum of all the multiples of 7 between 0 and 300. (a) 42 (b) 294 (c) 2058 (d) 2107 (e) 6321

28. Express 4164.086 correct to 2s.f. (a) 42 (b) 4100 (c) 4164.08 (d) 4164.09 (e) 4200

29. If log10 3 = 0.477, evaluate log10 27 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 1.8 (e) 2.52

30. Find the value of [41/4]6 . (a) 1/8 (b) 4 (c) 6 (d) 8 (e) 16

**PART B :**

1. Using logarithm tables, evaluate

 15.47 x 0.0852

 (254)**1/3**

2. (a) Find the values of $θ$ lying between 0o and 360o for cos $θ$ = - 0.7278

 (b) Use table to find the value of tan (- 125.2)0

3. For the table below, find the: (a) draw the histogram and use it to determine the mode (b) using the assumed mean method, determine the mean (c) use the formula method to calculate the median

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 | 81-90 | 91-100 |
| Frequency |  2 |  5 |  7 |  9 |  11 |  8 |  5 |  3 |

4. A girl starts from a point X and walks 220 m on a bearing 0630 .She then walks to a point Y on a bearing 1560. If Y is due east of X, calculate XY.

**ASꞌSALAM UNIQUE COLLEGE.**

Along New garage- Apata Express road, Oluyole Extension, Ibadan

**CLASS:** SS TWO **SUBJECT:** MATHEMATICS **DURATION:** 1Hour 30mins

 **EXAM:**  THIRD MID-TERM EXAM **SESSION**: 2017/2018 SESSION

*Instruction: Attempt all the questions in part A. Answer ONLY TWO questions in part B,*

 *question number one of part B is COMPULSORY.*

1. An Obtuse angle is four times the size of its supplementary angle. Find the value of the supplementary angle. (a) 450 (b) 360 (c) 300 (d) 180 (e) 20 0

2. A book seller gives 5% discount to a customer who pays cash. What is the marked price of a book for which the customer pays N475.00? (a) N450 (b) N500 (c) N1000 (d) N400 (e) N520

3. If y varies inversely as the cube root of x and y = 4 when x = 27, find y when x = 8

 (a) 6 (b) 4 (c) 3 (d) 2 (e) 5

4. The nth term of a sequence is 22n (-1/2) n .Find the third term. (a) -512 (b) -64 (c) -32 (d) -8 (e) 0

5. If x = 3.5 and y = 1.5, evaluate (2x + y)(x2 – y2). (a) 117 (b) 96 (c) 85 (d) 80 (e) 73

6. Factorize: 16x2y – 24x3y3. (a) 8x2y(2–3xy2) (b) 4x2(4y–6xy3) (c) 2xy(8x-12x2y2) (d)8(2x2y-3x3y3)

7. What is the coefficient of x in the expansion of (2x-y)(x-2y)? (a) 5y (b) 3y (c) -3y (d) -5y (e) 4y

8. If x+2y = 7 and 4x+11y = 34, by how much is 3y less than 10? (a) 3 (b) 4 (c) 5 (d) 7 (e) 6

9. Solve the equation: 7x2 – 3x – 10 = 0 (a) -1, 10/7 (b) 1, -10/7 (c) -1, -10/7 (d) 1, 10/7 (e) 1, 7/10

10. A rectangular tank 82cm long, 37cm wide and 75cm deep has the same volume as a cylindrical tank. If the radius of the cylindrical tank is 30cm, calculate its height. (Take π = 3.140)

 (a) 83.00cm (b) 80.52cm (c) 52.80cm (d) 50.80cm (e) 102cm

11. A chord PR of a circle, Centre O, is 20cm long. If PRO = 1200 , calculate the radius of the circle.

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12. In an octagon, three of the interior angles are x0 each. Each of the remaining five interior angles is (16 + x). Find the value of x. (a) 1020 (b) 1050 (c) 1200 (d) 1250 (e) 1300

13. Simplify: 6 $^{1}/\_{3}$ - 2 $^{3}/\_{4}$ + 1 $^{1}/\_{6}$ . (a) 4 $^{3}/\_{4}$ (b) 4 $^{1}/\_{5}$ (c) 2 $^{1}/\_{4}$ (d) $^{11}/\_{30}$ (e) 6 $^{5}/\_{8}$

14. Calculate the perimeter of a quadrant of a circle, radius 10.5cm. (Take π = 22/7)

 (a) 37.5cm (b) 36.0cm (c) 32.5cm (d) 27.0cm (e) 35.7cm

15. Express the sum of 10-2 and 10-3 in standard form. (a)1.0×10-6 (b) 1.0×10-4 (c) 1.1×10-3 (d) 1.1×10-2 (e)0

16. Convert 22014 to a base ten numeral. (a) 128 (b) 137 (c) 161 (d) 165 (e)182

17. Given that tanα = 21/20, find the value of α. (a) 0.0170 (b) 0.0180 (c) 43.600 (d) 46.400 (e) 0.170

18. Find the sum of all the multiples of 9 between 1 and 250.

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19. Express 0.0005854 in standard form.

 (a) 5.854×104 (b) 5.854×103 (c) 5.854×10-1 (d) 5.854×10-3 (e) 5.854×10-4

20. A student got 78 marks out of a possible 120. Express the student’s mark as a percentage.

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21. Find the value of r if 5(r - 3) = 20. (a) 1 (b) 4 (c) 7 (d) 12 (e) 18

22. Add 54eight and 67eight, giving your answer in base eight. (a) 1118 (b) 1218 (c) 1238 (d) 1338 (e) 1438

23. Express 60500 in standard form. (a)6.05×10-4 (b)6.05×10-3 (c) 6.05×104 (d)6.05×105 (e) 6.05×106

24. Given that a = 2/3 and b = -6, evaluate ab – b/a. (a) 0 (b) 5 (c) 8 (d) 9 (e) 13

25. Find the sum to infinity of the GP 9 – 3 + 1 - ………. (a) 6 (b) 6$ ^{3}/\_{4}$ (c) 13$ ^{1}/\_{2}$ (d) 12 (e) 27

26. Find the value of 2x – y if x + y = 8 and 4x – y = 22. (a) 2 (b) 4 (c) 6 (d) 8 (e) 10

27. Find the sum of all the multiples of 7 between 0 and 300. (a) 42 (b) 294 (c) 2058 (d) 2107 (e) 6321

28. Express 4164.086 correct to 2s.f. (a) 42 (b) 4100 (c) 4164.08 (d) 4164.09 (e) 4200

29. If log10 3 = 0.477, evaluate log10 27 correct to 2 s.f without using log tables

 (a) 0.55 (b) 1.4 (c) 1.43 (d) 1.8 (e) 2.52

30. Find the value of [41/4]6 . (a) 1/8 (b) 4 (c) 6 (d) 8 (e) 16

**PART B :**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 |
|  Frequency | 5 | 7 | 10 | 6 | 2 |

1.

 (a) Draw a histogram and a frequency polygon of the frequency distribution in the table above.

 (b) Find the mode (use the histogram above)

 (c) What is the modal class?

 (d) Find the median (use the formula method)

 (e) Find the mean (use the assumed mean method)

2. A man walks due west for 4km. He then changes direction and walks on a bearing of 1970 until he is South- West of his starting point. How far is he then from his starting point?

3. From points A and B on level ground, the angle of elevation of the top of a building are250 and 370 respectively. If |AB| = 57m, calculate, to the nearest metre, the distances of the top of the building from A and B if they are both on the same side of the building.

**ASꞌSALAM UNIQUE COLLEGE.**

 Along New garage- Apata Express road, Oluyole Extension, Ibadan

**CLASS:** SSS TWO **SUBJECT:** MATHEMATICS **DURATION:** 2hr 30min

**TERM:** THIRD **SESSION :** 2018/2019 SESSION

*Instruction: Answer all the questions in part A and five questions in part B. Question ONE of*

 *part B is COMPULSORY*

***PART A***

1. Evaluate 2022three - 1122three. A. 21120 B. 21121 C. 21112 D. 21011

2. If y = 23five + 101three , find y, leaving your answer in base two. A. 1110 B. 10111 C. 11101 D. 111100

3. Given that sin (5x - 28) 0 = cos (3x - 50) 0, 0 < x < 900, find the value of x. A. 140 B. 210 C. 320 D. 390

4. Solve for t in the equation $\frac{3}{4}$ t + $\frac{1}{3}$ (21 - t) = 11. A. $\frac{9}{13}$ B. 3 $\frac{9}{13}$ C. 5 D. 9$\frac{3}{5}$

5. A school girl spends $\frac{1}{4}$ of her pocket money on books and $\frac{1}{3}$ on dress. What fraction remains?

 A. $\frac{5}{6}$ B. $\frac{7}{12}$ C. $\frac{5}{12}$ D. $\frac{1}{6}$

6. In the diagram, <RPQ = <QRY, <PQR = <RYQ, |QP| = 8cm, |QY| = 4cm and |RY| = 5cm. Find |QR|.

A. 2.0cm B. 2.5cm C. 6.4cm D. 10.0cm

7. Find the value of x in the diagram.

 A. 100 B. 280 C. 360 D. 440

8. There are m boys and 12 girls in a class. What is the probability of selecting at random a girl from the class? A. $\frac{m}{12}$ B. $\frac{12}{m}$ C. $\frac{12}{m+12}$ D. $\frac{m}{m+12}$

9. Simplify 7$\frac{1}{2}$ – (2$\frac{1}{2}$ + 3) ÷ 16$\frac{1}{2}$ and correct your answer to the nearest whole number.

 A. 33 B. 8 C. 7 D. 0

10. The angle of elevation of the top of a tower from a point on the ground which is 36m away from the foot of the tower is 300. Calculate the height of the tower. A. 62.35m B. 20.78m C. 18.00 D. 10.39m

11. Find the area of a rectangle of length 4cm and whose diagonal is 8cm. (Leave your answer in surd form)

 A. 8$\sqrt{3}$ cm2 B. 12$\sqrt{3}$ cm2 C. 16$\sqrt{2}$ cm2 D. 16$\sqrt{3}$ cm2

12. Given that x + y = 7 and 3x – y = 5, evaluate $\frac{y}{2}$ – 3. A. -1 B. 1 C. 3 D. 4

13. In the diagram, POQ is the diameter of the circle centre O, calculate <QRS

 A. 350  B. 700 C. 1000 D. 1250

14. If ( $\frac{ 1}{4} $)(2 - y) = 1, find y. A. -2 B. - $\frac{1}{2}$ C. $\frac{1}{2}$ D. 2

15. Calculate the total surface area of a cupboard which measures 12cm by 10 cm by 8cm

 A. 1920 cm2 B. 592 cm2 C. 296 cm2 D. 148 cm2

16. If $\frac{x}{a+1}$ + $\frac{y}{b}$ = 1, make y the subject of the relation. A.$ \frac{b(a+1-x)}{a+1}$ B. $\frac{a+1}{b(a-x+1)}$ C. a$\frac{b-x+1}{b+1}$ D. $\frac{1}{a(b-x+1)}$

17. If log q P = r, express P in terms of q and r. A. P = qr B. P = rq C. P = r/q D. P = qr

18. Find the next two terms of the sequence 1, 5, 14, 30, 55, …, …, A.61,110 B.67,116 C.81,140 D. 91,140

19. Each interior angle of a regular polygon is 1080. How many side has it? A.5 B.7 C.9 D.14

20. Solve the equation 10 – 3x – x2 = 0 A. x = 2 or – 5 B. x = -2 or 5 C. x = -1 or 10 D. x = 2 or 5

21. Find, correct to two decimal places, the mean of 9,13,16,17,19,23,24 A.23.00 B.17.29 C.16.50 D.16.33

22. In the diagrams, $∆$XYZ is similar to $∆$PRQ, |XY| = 5cm, |XZ| = 3.5 cm and |PR| = 8 cm. Find |PQ|.

 A. 5.6 cm B. 11.2 cm C. 11.4 cm D. 28.0 cm

23. Factorise 27p2x2 – 48y2.

A. 9(3px – 4y)2 B. 3(3px–4y)(3px–4y) C. 9(px-4y)(3px+4y) D. 3(3px-4y)(3px+4y)

24. What is the volume of a solid cylinder of diameter 7cm and height 7 cm? (Take $π$ = 22/7)

 A. 38.5 cm3  B. 77 cm3 C. 269.5 cm3 D. 1078 cm3

25. Find the sum of the roots of the equation 2x2 + 3x – 9 = 0. A. -18 B. -6 C. - $\frac{9}{2}$ D. - $\frac{3}{2}$

26. Given that $\in $ = {1, 2, 3,……,10}, P = {x : x is prime} and Q = { y : y is odd}, find P **ꞌ** $∩$Q **ꞌ**

 A. {2} B. {1, 9} C. {3, 5, 7} D. {4, 6, 8, 10}

27. In the diagram, KS is a tangent to the circle centre O at R and <ROQ = 800. Find < QRS.

 A. 900 B. 800 C. 500 D. 400

28. Find the mean deviation of 6, 7, 8, 9, 10. A. 1.2 B. 1.5 C. 2 D. 8

29. A point X is on the bearing 3420 from a point Y. What is the bearing of Y from X?

 A. 3420 B. 2520 C. 1980 D. 1620

30. In the diagram, O is the centre of the circle where OS//QR and < SOR = 350. Find the value of < QPR.

 A. 350 B. 450 C. 550 D. 700

31. Find the average of the first four prime numbers greater than 10. A. 20 B. 19 C. 17 D. 15

32. Given that $\sqrt{128}$ + $\sqrt{18}$ - $\sqrt{k}$ = 7$\sqrt{2}$ , find k A. 8 B. 16 C. 32 D. 48

33. In the diagram, PQRW is a circle. Lines PW and QR are produced to meet at M, where < WMR = 300 and |WM| = |MR|. Find the value of x.

 A. 100 B. 250 C. 350 D. 600

 The table below gives the marks scored by a group of students in a test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Mark | 0 | 1 | 2 | 3 | 4 | 5 |
|  Frequency | 1 | 2 | 7 | 5 | 4 | 3 |

 Use the table to answer questions 34 and 35

34. What is the median mark? A. 1 B. 2 C. 3 D. 4

35. What is the probability of selecting a student from the group that scored 2 or 3?

 A. $\frac{ 1}{11}$ B. $\frac{ 5}{22}$ C. $\frac{ 7}{22}$ D. $\frac{ 6}{11}$

36. Find the range of values of x for which $\frac{ x+2}{4}$ - $\frac{ x+1}{3}$ > $\frac{ 1}{2}$. A. x > 4 B. x > -4 C. x < 4 D. x < - 4

37. A boy walks 800 m in 20 minutes. Calculate his average speed in km per hour.

 A. 2.4 B. 4 C. 16 D. 24

38. Simplify $\frac{ 2}{a+b}$ - $\frac{ 1}{a-b}$ A. $\frac{ 3}{a+b}$ B. $\frac{ a-3b}{a - b}$ C. $\frac{ 3a - b}{a - b}$ D. $\frac{ a - 3b}{a + b }$

39. The diagram is a circle centre O. find the value of x

 A. 300 B. 500 C. 610 D. 760

Use the graph to answer questions 40 and 41

40. What are the roots of the equation x2 + 3x – 4 = 0 ? A. 1,4 B. –1,- 4 C. -1,4 D. -4,1

41. The values of x when y = 3 are approximately A. -4.7and1.4 B. -4.6and1.5 C. -3.6and0.4 D.-3.6and1.5

42. Which of the following quadratic equations has -1/2 and ¾ as its root?

A. 8x2 + 11x – 3 = 0 B. 8x2 - 11x – 3 = 0 C. 8x2 + 2x – 3 = 0 D. 8x2 - 2x – 3 = 0

43. The locus of a point which moves in a plane such that it is equidistant from two fixed points X and Y is

 A. the perpendicular bisector of the line segment XY B. a line parallel to the line segment XY

 C. a circle with XY as diameter D. the line perpendicular to the line segment XY

44. Given that p α 1/$\sqrt{r}$ and p = 3 when r = 16, find the value of r when p = 3/2 A. 48 B. 64 C. 72 D. 324

45. Which of the following is/are true? In a plane, the locus of points:

i. equidistant from a straight line is a circle radius d where d is the distance between the point and the straight line ii. equidistant from two given points P and Q is a circle of radius |PQ| iii. equidistant from two points is the perpendicular bisector of the line joining the two points

A. I only B. ii only C. iii only D. i, ii, and iii

46. The sides of two cubes are in the ratio 2 : 5. What is the ratio of their volume?

 A. 4:5 B. 8 : 15 C. 6 : 125 D. 8 : 125

47. Given that p = 2, q = -5 and r = -4, evaluate 3p2 – q2 – r3. A. 101 B. 77 C. 51 D. -27

48. A Cooperative Society charges an interest of 5$\frac{1}{2}$ % per annum on any amount borrowed by its members. If a member borrows N125,000, how much does he pay back after one year?

 A. N136,875 B. N131,875 C. N128,750 D. N126,250

49. A bag contains 3 red and 2 white identical balls. If 2 balls are picked at random from the bag, one after the other and without replacement, find the probability that they are of different colours.

 A. 36/625 B. 16/625 C. 12/25 D. 13/25

50. A point on the ground is 5m away from the foot of a vertical wall 7m high. Calculate, correct to the nearest degree, the angle of depression of the point from the top of the wall.

 A. 360  B. 440 C. 460  D. 540

PART B:

1. The scores of 50 competitors in a Mathematics competition are as follows:

 51 60 67 40 55 40 39 40 26 74 60 44 71 46

 65 70 73 58 59 48 23 46 48 37 68 58 59 51

 69 54 53 61 40 38 45 36 67 32 52 47 59 62

 51 50 39 51 50 47 43 42

 (a) Prepare a frequency distribution table using class interval 21 – 30, 331 – 40,……..

 (b) Using an assumed mean of 45,5, calculate the mean score.

 (c) Estimate the semi-inter quartile range.

2. (a) Solve the following inequality:

 4x – 1 - 1 + 2x ≤ 8 + 2x

 3 5

 (b) (i) Find the magnitude and direction of the vector -5i + 12j

 (ii) What is the resultant of the vectors DE + CD – BA + BC ?

(c) Find the gradient of the line joining (3, 7) and (6, 9).

3. Evaluate, with the use of four-figure tables

 55.3 x 18.5

 (1.38) x 2.02

4. (a) A bag contains 5 red and 5 blue balls. If three balls are picked at random without replacement,

 find the probability that:

 (i) one of the balls is red (ii) all the balls are blue (iii) at least two of the balls are red

 (b) A man is 24 years older than his son. In 3 years’ time he will be twice as old as his son is now.

 How old is the father now?

5. (a) A courier bus travels from its head office in Lagos to a town B 210km away on a bearing of 0550

to deliver a mail. It then changes course and moves to its branch office also in Lagos on a bearing of 2200. If the branch office is directly east of the head office, calculate, correct to 3 significant figures:

 (i) the distance between the head office and the branch office

 (ii) how far is town B from the branch office?

 (b) If 1 + 1 = 2 , find u in terms of v and f

 V u f

6. (a) In the diagram below, O is the centre of the circle, P, Q, R are points on the circumference. Show

 that x = 2y.

 (b) Find the value of x for which 3x + 2 is undefined

 x + 7

7. Copy and complete the table for y = 3x2 + 5x – 7 for -3 ≤ x ≤ 2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X | -3 | -2 | -1 | 0 | 1 | 2 |
| Y  |  | -5 |  | -7 |  |  |

 On the same axes draw the graphs of y = 3x2 + 5x – 7 and y = 2x + 3. Use a scale of 2cm to 1unit along the x-axis and 1cm to 2units along the y-axis.

 (a) Using the graphs, find the roots of the equation 3x2 + 5x – 7 = 0

 (b) Using the graphs, find the solution of the simultaneous equations:

 y = 3x2 + 5x – 7 and y = 2x + 3.