KITH AND KIN INTERNATIONAL COLLEGE

7/11 Kaoli Olusanya Street, Owode Ibeshe, Ikorodu, Lagos State.

FIRST TERM EXAMINATION 2025/2026 ACADEMIC SESSION

NAME					
SUBJECT	MATHEMATICS	CLASS	SS 2	DURATION	2½ HOURS

THEORY

(100 Marks)

Section A

Answer all the questions in this part. All questions carry equal marks. [40 marks]

1. (a) Use logarithm tables to evaluate $\frac{(3.68)^2 \times 6.705}{\sqrt{0.3581}}$ **WASSCE 1995/6** (4 marks)

   (b) If $\frac{1}{2}, \frac{1}{x}, \frac{1}{3}$ are successive terms of an arithmetic progression (A.P). Show that, $\frac{2-x}{x-3} = \frac{2}{3}$ **WASSCE 2016/6** (4 marks)

2. A carpenter was told to make a rectangular desk with top of dimension 50 cm by 40 cm. The carpenter actually made the desk 60 cm by 35 cm.
   (a) Calculate the percentage error in the;
   (i) length and the breadth
   (ii) area of the table top. (6 marks)
   (b) Find the product of the two errors in (a)(i) **WASSCE 1990/4** (2 marks)

3. (a) The eight term of an Arithmetic Progression (A.P.) is 46 and the sum of the first eight term is 200. Find the:
   (i) First term;
   (ii) Sum of the first 12 terms. ***WAEC 2025*** *(4 marks)*

   (b) The product of the ages of Adu and Tanko is 9 less than Akorfa's age. If Tanko is 4 years older than Adu and akorfa's age is six times Tanko's age, find Akorfa's age.
   WAEC 2025 *(4 marks)*

4. If (3-x), 6, (7-5x) are consecutive terms of a geometric progression (GP) with constant ratio r>0, find the:
   Value of x (ii) constant ratio. ***WAEC 2013*** (4 marks)
   (b) The sum of three numbers is 81. The second number is twice the first. Given that the third number is 6 more than the second, find the numbers. **WASSCE 2021/1** (4 marks)

5. (a) Solve the equation $2^x (4^{-y}) = 2$ and $3^{-x} (9^{2y}) = 3$ simultaneously. ***WAEC 2019*** (4 marks)

   (b) Solve the simultaneous equation:
   $\frac{1}{x} + \frac{1}{y} = 5 \; ; \; \frac{1}{y} - \frac{1}{x} = 1$ ***WAEC 2014*** (4 marks)

Section B

Answer five [5] questions only in this section. All questions carry equal marks. [60mrks]

6. (a) Simplify, $\frac{1}{3^{5n}} \times 9^{n-1} \times 27^{n+1}$ **WASSCE 2001/2** (4 marks)

(b) Without using mathematical tables or calculator, simplify $\frac{0.09 \times 1.21}{1.2 \times 0.008 \times 0.16^2}$ leaving The answer in standard form. **WASSCE 2007/1** (4 marks)

(c) In a football match, the tickets for children and adults were sold at D3.00 and D5.00 respectively. If 400 people attended the football match and D1 700.00 was collected as ticket sales,

(i) How many tickets were sold to adults?

(ii) Mr. Sonko sold 250 tickets. If 175 of the tickets were for adults, how much sales did he makes altogether? **WASSCE 2023/2** (4 marks)

7. a) Copy and complete the table of values for the relation $y=3x^2 -5x -7$.

X	-3	-2	-1	0	1	4	3	4
Y	35			-7	-9		5	

(4 marks)

(b) using scales of 2cm to 1 unit on the x-axis and 2 cm to 5 units on the y-axis, draw the graph of $y= 3x^2 -5x -7$, $-3 \leq x \leq 4$. (4 marks)

(c) From the graph:

(i) Find the roots of the equation $3x^2 -5x -7=0$;

(ii) estimate the minimum value of y;

(iii) calculate the gradient of the curve at the point x=2 ***WAEC 2013*** (4 marks)

8. (a) Evaluate without using mathematical tables, $17.57^2 - 12.43^2$ (3 marks)

(b) In the simultaneous equation;

p$x + qy = 5$; q$x + py = -10$; p and q are constants. If $x = 1$ and $y = -2$ is the Solution of the equation, find p and q. (5 marks)

(c) Solve $\frac{4r-3}{6r+1} = \frac{2r-1}{3r+4}$ **2004/2 WASSCE** (4 marks)

9. (a) How many numbers between 75 and 500 are divisible by 7? (3 marks)

(b) The 8th term of an Arithmetic Progression (A.P) is 5 times the 3rd term while the 7th term is 9 greater than the 4th term. Write the first five terms of the A.P. (6 marks)

2009/13 WASSCE

(c) It takes 8 students two-thirds of an hour to fill 12 tanks with water. How many tanks of water will 4 students fill in one-third of an hour at the same rate. **2017/11 WASSCE** (3 marks)

10. (a) Given that $x^2 + b x + 18$ is factorized as $(x + 2) (x + c)$. Find the value of c and b (4 marks)

(b) Solve the following simultaneous equations $2t - 3s - 9 = 3t + 5s - 4 = 4t - 2s - 14$

(c)The sum of the ten terms of an Arithmetic Progression (A.P) is 130. If the fifth term is times the first term, find the:

a. common difference;

b. First term

c. number of terms the A.P. if the last term is 28 .

(5 marks)

1989/12 WASSCE

11. (a) The third and sixth terms of a Geometric Progression (G.P) are $\frac{1}{4}$ and $\frac{1}{32}$ respectively, find;

(i) the first term and the common ratio

(ii) the seventh term. **2019/11 WASSCE** (4 marks)

(b) Solve for (x, y) in the equations $2x + y = 4, x^2 + xy = -12$ (4 marks)

(c) A transport company has a total of 20 vehicles made up of tricycles and taxicabs. Each Tricycle carries 2 passengers while each taxicab carries 4 passengers. If the 20 vehicles carry a total of 66 passengers at a time, how many tricycles does the company have?

2016/2 WASSCE (4 marks)

12.(a) The sum of the first 9 terms of an A.P is 72 and the sum of the next 4 terms is 71. Find the The A.P. (4 marks)

(b) Two positive whole numbers p and q are such that p is greater than q and their sum is Equal to three times their differences;

(i) Express p in terms of q

(ii) Hence, evaluate $\frac{p^2+q^2}{pq}$ **2013/6 WASSCE** (4 marks)

(c) The graph of the equation $y = Ax^2 + Bx + C = 0$ passes through the points (0,0) , (1, 4) and (2, 10). Find the:

(i) Value of C

(ii) Valued of A and B;

(iii)Coordinates of the other point where the graph cuts the x-axis.

2009/9 WASSCE (4 marks)

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FIRST TERM EXAMINATION 2024/2025 ACADEMIC SESSION

NAME					
SUBJECT	MATHEMATICS	CLASS	SS 2	DURATION	$1\frac{1}{2}$ HOURS

OBJECTIVE TEST
(50 marks)

Answer all questions: ***Each*** question is followed by ***four*** options lettered A to D. Find out the correct option for ***each*** question and ***shade in pencil*** on your answer space which bears the same letter as the option you have chosen. Give only ***one*** answer to ***each*** question.

1. Given that $\frac{5^{n+3}}{25^{2n-3}} = 5^0$, find n
   A. $n = 1$
   B. $n = 2$
   C. $n = 3$
   D. $n = 5$

2. If $(2x + 3)^3 = 125$, find the value of x
   A. 1
   B. 2
   C. 3
   D. 4

3. If $x = 64$ and $y = 27$, calculate $\frac{x^{\frac{1}{2}} - y^{\frac{1}{3}}}{y - x^{\frac{2}{3}}}$
   A. $2\frac{1}{5}$
   B. 1
   C. $\frac{5}{11}$
   D. $\frac{11}{43}$

4. The ages of three men are in the ratio 3 : 4 : 5, if the difference between the ages of the oldest and the youngest is 18 years, find the sum of the ages of the three men.
   A. 45 years
   B. 72 years
   C. 108 years
   D. 216 years

5. P varies inversely as Q. The table below shows the value of Q for some selected values of P.

P	6	8	9	12
Q	24	18	?	12

What is the missing value of Q in the table?
   A. 4
   B. 9
   C. 15
   D. 16

6. Two buses start from the same station at 9:00 am, and travel in opposite directions along the same straight road. The first bus travels at a speed of 72 km/h and the second at 48 km/h. At what time will they be 240 km apart?
   A. 1:00 pm
   B. 12:00 noon

C. 11:00 am
D. 10:00 am

7. The value of tan 315° is
A. 1
B. $\frac{\sqrt{2}}{2}$
C. 0
D. -1

8. John pours 98 litres of red oil into a rectangular container with length 220 cm and breath 40 cm. Calculate, correct to the nearest cm, the height of the oil in the container.
A. 11 cm
B. 18 cm
C. 21 cm
D. 34 cm

9. The expression $\frac{5x+3}{6x(x+1)}$ will be undefined when x equals
A. (0, 1)
B. (0, -1)
C. (-3, -1)
D. (-3, 0)

10. Water flows out of a pipe at a rate of 40π cm^2 per second into an empty cylindrical container of base radius 4 cm. Find the height of water in the container after 4 seconds.
A. 10 cm
B. 14 cm
C. 16 cm
D. 20 cm

11. find the number whose logarithm to base 10 is 2.6025
A. 0.0004
B. 4.004
C. 40.04
D. 400.4

12. If log $x = 2.3675$ and log $y = 0.9750$, what is the value of $x + y$? Correct to three significant figures.
A. 11.8
B. 1.31
C. 9.03
D. 9.44

13. Simplify 0.0664 x 0.025, expressing the answer in standard form.
A. 1.66 x 10^{-2}
B. 1.66 x 10^{-3}
C. 1.66 x 10^{-4}
D. 1.66 x 10^{5}

14. Evaluate $\frac{log8}{log\frac{1}{4}}$
A. $\frac{-2}{3}$
B. $\frac{3}{2}$
C. $\frac{1}{2}$
D. 4

15. If $log_x 2 = 0.3$, evaluate $log_x 0.008$
A. 2.4
B. 1.2
C. 0.9
D. 0.6

16. If $log\ 2 = 0.3010$ and $log\ 2^y = 1.8062$, find correct to the nearest whole number, the value of y.
A. 6
B. 5
C. 4
D. -5

17. If $log_{10}2 = m$ and $log_{10}3 = n$, find the $log_{10}24$ in terms of m and n.

A. $3m + n$
B. $m + 3n$
C. $4mn$
D. $3mn$

18. Approximate 0.0033780 to 3 significant figures.
A. 0.338
B. 0.00338
C. 0.00339
D. 338

19. If x: y : z = 2:3:4, evaluate $\frac{9x+3y}{6z-2y}$
A. $1\frac{1}{2}$
B. 2
C. $2\frac{1}{2}$
D. 3

20. Expand (2x – 3y)(x-5y).

A. $2x^2 + 13xy – 15y^2$

B. $2x^2 - 13xy – 15y^2$

C. $2x^2 + 13xy + 15y^2$

D. $2x^2 - 13xy + 15y^2$

21. The length of a place is 1.75 m. A girl measured it as 1.80 m. Find the percentage error.

A. $\frac{284}{7}\%$

B. $\frac{29}{7}\%$

C. $\mathbf{\frac{20}{7}\%}$

D. $5\ \%$

22. A student found the approximate value of 0.02548 correct to two decimal places instead on two significant figures. Find the percentage error.
A. $0\ \%$
B. $13\frac{1}{3}\%$
C. $16\frac{2}{3}\%$
D. $20\ \%$

23. The number 186 047 was corrected to 186 000. Which of the following can correctly describe the degree of approximation made?
I. to the nearest hundred.
II. To the nearest thousand.
III. To 3 significant figures.
IV. To 4 significant figures.

A. I and III only.

B. I and IV only.

C. II and III only.

D. II and IV only.

24. Find the 6th term of the sequence:

$\frac{2}{3}, \frac{7}{15}, \frac{4}{15}, \ldots.$

A. $-\frac{1}{3}$

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

C. $\frac{1}{15}$

D. $\frac{2}{3}$

25. The fourth term of an exponential sequence is 192 and its ninth term is 6. Find the common ratio of the sequence.

A. $\frac{1}{3}$

B. $\frac{1}{2}$

C. 2

D. 3

26. Given that $-6, 2\frac{1}{2}, \ldots$ 71 is linear sequence, calculate the number of the terms in the sequence.

A. 20

B. 21

C. 22

D. 23

27. The 1st term of a geometric progression (G.P) is $\frac{3}{4}$, if the product of the 2nd and 3rd terms of the sequence is 972, find its common ratio.

A. 3

B. 4

C. 6

D. 12

28. Simplify $\frac{2x^2-5x-12}{4x^2-9}$

A. $\frac{x+4}{2x+3}$

B. $\frac{x+4}{2x-3}$

C. $\frac{x-4}{2x+3}$

D. $\frac{x-4}{2x-3}$

29. If $x^2 + 15x + 50 = a^2 + bx + c = 0$. Which of the following statements is not true?

A. $x = -5$

B. $x = 10$

C. $x + 10 = 0$

D. $bc = 750$

30. Given that $(2x + 7)$ is a factor of $2x^2 + 3x - 14$, find the other factor.

A. $x + 2$

B. $2 - x$

C. $x - 2$

D. $x + 1$

31. If $\frac{4m+3n}{4m-3n} = \frac{5}{2}$, Find the ratio of m:n

A. 7: 4

B. 4 : 3

C. 3 : 4

D. 4 : 7

32. Factorize $6x^2$ +7x -20

A. (6x -5)(x+4)

B. 2(3x-5)(x + 2)

C. (3x +4)(2x-5)

D. (3x -4)(2x+5)

33. The truth set of $8 + 2x - x^2 = 0$ is(p, q). Evaluate $p + q$

A. -6

B. -2

C. 2

D. 4

34. P=(3,9,11,13) and Q=(3,7,9,11,13,15) are subsets of the universal set E = {1,3,7,9,11,13,15}. Find P^{l} n Q^{l}.

A. {3, 9}

B. {5, 7, 15}

C. {1}

D. {1, 11}

35. The sum and product of the quadratic equation is 4 and 3 respectively find the equation

A. $x^2 - 4x - 3$

B. $2x^2 + 3x - 14$

C. $2x^2 - 3x - 14$

D. $3x^2 - 4x - 3$

36. If $log_a x = p$, express x in term of a and p

A. $x = a + p$

B. $x = \frac{a}{p}$

C. $x = p^a$

D. $x = a^p$

37. A box contains 13 currency notes, all of which are either ₦50 or ₦20 notes. The total value of the currency notes is ₦530. How many ₦50 notes are in the box?

A. 4

B. 6

C. 8

D. 9

38. Which of the following is equal to $\frac{72}{125}$?

A. $\frac{2^3 \times 3^2}{5^3}$

B. $\frac{2^4 \times 3^1}{5^3}$

C. $\frac{2^3 \times 3^2}{5^3}$

D. $\frac{2^5 \times 3^2}{5^3}$

39. Determine the equation of a line with a gradient 4 and passing through the point (1,2)

A. 4x-2y=4

B. 4x-y=2

C. 3x-7y=8

D. 4x+y=2

40. If the line 3y -2x =6 is given, find the gradient.

A. $\frac{2}{3}$

B.- $\frac{2}{3}$

C. $\frac{3}{2}$

D. 1

41. A casting is made up of copper and zinc. If 65% of the casting is zinc and there are 147 g of copper, what is the mass of the casting?

A. 320 g

B. 420 g

C. 530 g

D. 620 g

42. The perimeter of rectangle is 54cm and its area is 180cm^2. Find the length and width.

A. 13, 14

B. 15, 12

C. 22, 23

D. 12, 35

43. Find the values of x and y that satisfy

y = x+2, and $x^2 + y^2 = 20$

A. (2, 4) and (-4,-2)

B. (2, 4) and (-4,-2)

C. (2, 4) and (4,-2)

D. (2,-4) and (-4,-2)

44. If $104_x = 68$, find the value of x

A. 5

B. 7

C. 8

D. 9

45. The gradient of the line joining (2,3) and (5,9) is

A. 2

B. 3

C. 1

D. 6

46. simplify (2+$\sqrt{3}$)(2-$\sqrt{3}$)

(5,9) is

A. 1

B. 4

C. 2

D. 7

47. Which of the following is not necessarily true of a rectangle?

A. the diagonals are equal

B. the diagonals bisect each other

C. the diagonals are perpendicular

D. each diagonal divides the area of the rectangle equally

48. A bag contains 3 white, 6 red and 5 blue identical balls. A ball is picked at random from the bag. What is the probability that it is either white or blue?

A. $\frac{9}{14}$

B. $\frac{4}{7}$

C. $\frac{5}{14}$

D. $\frac{3}{14}$

49. In a bag of oranges, the ratio of the good ones to the bad ones in the bag is 5 : 4, if the number of the bad oranges in the bag is 36, how many oranges are there altogether?

A. 81

B. 72

C. 54

D. 45

50. In what module is it true that 9 + 8 = 5?

A. mod 10

B. mod 11

C. mod 12

D. mod 13