

TECHNICAL AND VOCATIONAL EDUCATION

The Teachers' Resource Unit (TRU) in collaboration with the Regional Pedagogical Inspectorate and the South West Association of Mathematics Teachers (SWAMT)		Subject Code 5440	Paper Number 1
CANDIDATE NAME		Subject Title	
CANDIDATE NUMBER		MATHEMATICS	
CENTRE NUMBER			
TVE INTERMEDIATE LEVEL		DATE: 28/01/2023 Day: FRIDAY AFTERNOON	

Time Allowed: One hour thirty minutes

INSTRUCTIONS TO CANDIDATES:

1. USE A SOFT HB PENCIL THROUGHOUT THIS EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "TVE International Level: 5440 Mathematics, Paper 1".
4. Insert the information required in the spaces provided above.
5. Without opening the booklet, pull out the answer sheet carefully from inside the front cover of this booklet. Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. Insert the information required in the spaces provided on the answer sheet using your HB pencil.
Candidate Name, Center Number, Candidate Number, Subject Code Number and Paper Number.
Then to answer questions in this Examination:
7. Answer ALL the 50 questions in this examination. All questions carry equal marks.
8. Non-programmable calculators are allowed.
9. For each question there are four suggested answers, A, B, C, and D. Decide which answer is correct. Find the number of the question on the Answer sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen. For example, if C is your correct answer, mark C as shown below:

(A) (B) (C) (D)

11. Mark only one answer for each question. If you mark more than one answer, you will score zero for that question. If you change your mind about an answer, erase the first mark carefully, and then mark your new answer.
12. Avoid spending much time on any question. If you find a question difficult, move to the next question. You can come back to this question later.
13. Do as much work as the booklet allows, when necessary, in the blank space in the question booklet.
14. Mobile phones are NOT ALLOWED in the examination room.
15. It is your job to take the booklet and answer sheet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination.

1. The coefficient of x^2 in the expansion $(x-1)(-2x+3)$ is

A	B	C	D
-1	3	2	-2

2. The number 79.41 approximated to the nearest whole number is

A	B	C	D
794	80	79	7941

3. The value of k for which $(x+4)$ is a factor of $x^2 - kx - 20 = 0$ is

A	B	C	D
4	1	-4	-1

4. The n^{th} term of the geometric progression 4, 8, 16 and 32 is

A	2^{n-1}
B	4^{n-1}
C	$2 \times 2^{n-1}$
D	$4 \times 2^{n-1}$

5. The simplified form of $\sqrt{3} - \sqrt{12}$ is

A	B	C	D
$-\sqrt{3}$	$3\sqrt{3}$	$\sqrt{3}$	$-3\sqrt{3}$

6. A bank offers an electrician a personal loan of 315,000 FCFA. He has to pay back the capital in 11 monthly payments of 35,000 FCFA. How much does the man pay extra for this agreement?

A	70,000 FCFA
B	35,000 FCFA
C	350,000 FCFA
D	385,000 FCFA

7. Converting 25% to a fraction gives

A	B	C	D
$\frac{3}{4}$	$\frac{2}{5}$	$\frac{1}{4}$	$\frac{1}{5}$

8. Two towns are 150km apart. What is the distance between the two towns on a map that uses a scale of 1cm:50km?

A	B	C	D
3 cm	30 cm	300 cm	3000 cm

9. The value of x in the equation $\frac{x}{2} - 3 = 9$ is

A	B	C	D
-4	24	8	12

10. Simplifying the fraction $\frac{3}{5} - \frac{1}{3}$ gives

A	B	C	D
$\frac{3}{15}$	$\frac{2}{15}$	$\frac{4}{15}$	$\frac{1}{15}$

11. The value of n in $2^n \times 2^{-4} = 2^{10}$ is

A	B	C	D
16	-14	-6	14

12. The degree of the expression $(2x^2 + 4)(x + 1)$ is

A	B	C	D
2	3	1	4

13. The solution of the simultaneous equation $2x + y = 0$
 $x - y = 3$ is

A	$S = \{(1, -2)\}$
B	$S = \{(1, 2)\}$
C	$S = \{(-1, 2)\}$
D	$S = \{(-1, -2)\}$

14. If $v = 4i - 3j$ and $w = 2i + 5j$. Then $3v + w$ is

A	$-14i + 4j$
B	$14i + 4j$
C	$14i - 4j$
D	$-14i - 4j$

15. The value of 3 in the number 3467.5 is

A	Three thousandths
B	Three hundredths
C	Three thousand
D	Three hundred

16. Given $A = 2i + j$. The direction of A to 2 decimal places is

A	26.57°
B	26.56°
C	63.43°
D	63.44°

17. The mean of the distribution is

Marks (x)	3	5	2
Frequency (f)	5	2	4

A	B	C	D
3	5	2	4

18. The determinate of $\begin{pmatrix} 3 & 0 \\ 2 & 1 \end{pmatrix}$ is

A	B	C	D
3	1	2	0

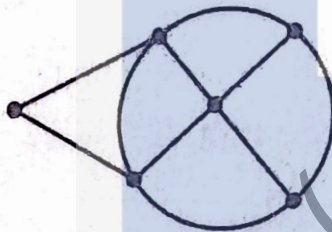
19. The common ratio of the sequence 32, 16, 8 and 4 is

A	B	C	D
2	$\frac{1}{2}$	4	$\frac{1}{4}$

20. The gradient of the line joining the points $A = (-3, -4)$ and $B = (1, -2)$ is

A	B	C	D
$\frac{1}{2}$	3	$-\frac{1}{2}$	2

- 21.



The number of even nodes in the diagram above is (are)

A	B	C	D
2	4	6	1

22. John, a Builder leaves his house at 7:35am and uses 40 minutes to his construction site. At what time does he reach the construction site?

A	8:05am
B	8:20am
C	8:10am
D	8:15am

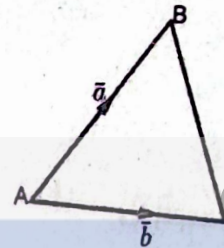
23. If $f(x) = x + 1$. $f^{-1}(x) =$

A	$1 - x$
B	$x - 1$
C	$-1 - x$
D	$-x + 1$

24. $(2 \times 10^3)(6 \times 10^{-2})$ expressed in standard form is

A	1.2×10^1
B	1.2×10^{-6}
C	1.2×10^2
D	1.2×10^5

- 25.



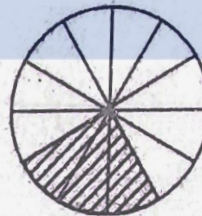
In the diagram above, the vector \vec{BC} is represented in terms of \vec{a} and \vec{b} by

A	$\vec{b} + \vec{a}$
B	$\vec{b} - \vec{a}$
C	$\vec{a} - \vec{b}$
D	$\vec{a} + \vec{b}$

26. Expressing 0.65 to a fraction is

A	B	C	D
$\frac{13}{100}$	$\frac{13}{25}$	$\frac{13}{65}$	$\frac{13}{20}$

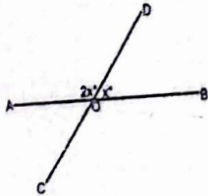
- 27.



The diagram above is divided in to equal parts. The shaded region is represented by

A	B	C	D
$\frac{1}{4}$	$\frac{2}{3}$	$\frac{3}{4}$	$\frac{1}{3}$

28.



In the diagram above, the lines AB and CD meet at O. The value of angle BOD is x° while that of angle AOD is $2x^\circ$. The value of x in degrees is

A	B	C	D
120°	80°	60°	100°

29. Given that $x = 4$ and $y = 3$. The value of k if y is inversely proportional to \sqrt{x} is

A	B	C	D
4	6	3	2

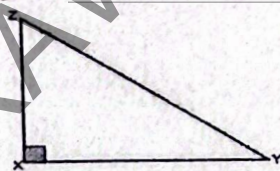
30. A Technician is paid the sum of 20,000 FCFA which is 20% less than the price that was agreed for a piece of job. The amount that was agreed is

A	B	C	D
22,000 FCFA	28,000 FCFA	26,000 FCFA	24,000 FCFA

31. Simplifying $\left(\frac{512}{729}\right)^{\frac{1}{3}}$ gives

A	B	C	D
$\frac{9}{8}$	$\frac{2}{3}$	$\frac{3}{2}$	$\frac{8}{9}$

32.



In the right angled triangle XYZ above, the length of the side XY is given by

A	B	C	D
$XY = \sqrt{XZ^2 - ZY^2}$	$XY = \sqrt{-XZ^2 - ZY^2}$	$XY = \sqrt{ZY^2 - XZ^2}$	$XY = \sqrt{ZY^2 + XZ^2}$

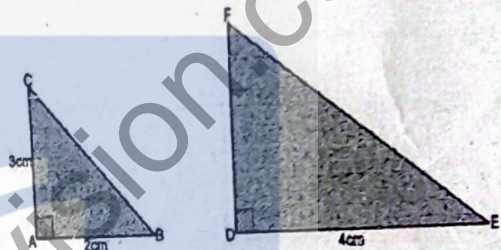
33. The interval $[-2, 5]$ is represented by

A	B	C	D
$-2 \leq x \leq 5$	$-2 < x \leq 5$	$-2 \leq x < 5$	$-2 < x < 5$

34. The distance between the two points $A(-2, 3)$ and $B(3, -1)$ is

A	B	C	D
$\sqrt{41}$	3	$\sqrt{29}$	4

35.



Triangles ABC and DEF are similar. The ratio of their area is

A	B	C	D
2:4	3:12	2:3	4:12

36. $f: \mapsto -3x$ and $g: \mapsto -2x$. $fg(x)$ is

A	B	C	D
$-6x$	$6x^2$	$6x$	$-6x^2$

37. Let $\mu = \{1, 2, 3, \dots, 20\}$

$A = \{\text{Multiples of 3}\}$

$B = \{\text{Prime numbers}\}$

$C = \{\text{Factors of 18}\}$

$A \cap B \cap C =$

A	B	C	D
$\{3\}$	$\{1\}$	$\{2\}$	$\{6\}$

38. If $\alpha + \theta = 90^\circ$, then α and θ are

A	B	C	D
Supplementary angles	Equal angles	Corresponding angles	Complementary angles

39. The coordinates where the graph of the function $f(x) = (x - 2)(x + 1)$ cuts the x -axis is

A	B	C	D
$(-2, 0)$ and $(0, -1)$	$(-2, 0)$ and $(-1, 0)$	$(2, 0)$ and $(-1, 0)$	$(2, 0)$ and $(0, -1)$

40. If $f(2) = 4$. The value of b in $f(x) = 3x - b$ is

A	B	C	D
-2	6	2	0

41. The probability that it will rain in a particular day is $\frac{2}{5}$. The probability that it will not rain is

A	B	C	D
$\frac{1}{5}$	$\frac{3}{5}$	$\frac{4}{5}$	$\frac{2}{5}$

42. The circumference of a circle is 44cm.

Using $\pi = \frac{22}{7}$, the radius is

A	B	C	D
22cm	11cm	2cm	7cm

43. If 4 sweets cost 100FCFA, how many sweets will be bought for 1,250FCFA?

A	B	C	D
50	20	25	30

44. The roots of the equation $(2x + 1)(x - 5) = 0$ are

A	$x = -\frac{1}{2}, x = -5$
B	$x = \frac{1}{2}, x = -5$
C	$x = -\frac{1}{2}, x = 5$
D	$x = \frac{1}{2}, x = 5$

45. Making π the subject in the formula $2\pi rh + 2\pi r^2$ is

A	$\frac{A}{2rh + 2r^2}$
B	$\frac{A}{2rh - 2r^2}$
C	$\frac{A}{-2r^2 - 2rh}$
D	$\frac{A}{2r^2 - 2rh}$

46. Which of the expressions below is always even given that x is an even number

A	$3x + 1$
B	$3x - 2$
C	$3x - 1$
D	$3x - 3$

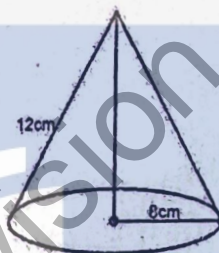
47. $\sqrt{225}$ can be expressed as

A	$5^2 \times 5^2$
B	$5^5 \times 3^5$
C	$5^5 \times 3^2$
D	$5^2 \times 3^2$

48. A transformation that rotates each point in the shape at a certain number of degrees around that point is called

A	Rotation
B	Reflection
C	Transformation
D	Translation

- 49.



The area of the cone above in terms of π is

A	B	C	D
240π	216π	160π	96π

50. What is the range of the data 82, 89, 64, 78, 95, 92, and 78?

A	B	C	D
78	31	82	41

END !!!

GO BACK AND CHECK YOUR WORK