



REPUBLIQUE DU CAMEROUN
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REPUBLIC OF CAMEROON
Peace-Work-Patrieland

MINISTRY OF SECONDARY EDUCATION

TEACHERS' RESOURCE UNIT
REGIONAL BRANCH FOR THE NORTH WEST

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MARCH 2020

The Teachers' Resource Unit and the Regional Inspectorate of Pedagogy, in collaboration with MTA	SUBJECT CODE NUMBER 0575	PAPER NUMBER 1
GENERAL CERTIFICATE OF EDUCATION REGIONAL MOCK EXAMINATION	SUBJECT TITLE ADD MATHEMATICS	
CANDIDATE NAME:		
CANDIDATE NUMBER:		
CENTRE NUMBER:	DATE Tuesday 24 th March 2020 AFTERNOON	
ORDINARY LEVEL		

Time Allowed: One and a half hours
INSTRUCTIONS TO CANDIDATES:

Mobile phones are NOT ALLOWED in the examination room.

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 "Ordinary level -0575 code and subject title—ADD MATHS -Paper 1".
4. Insert the information required in the spaces 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, Centre Number, Candidate Number, Subject Code Number, and Paper number

How 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]

10. 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.
11. Avoid spending much time on any question. If you find a question difficult, move to the next. You can come back to the question later.
12. Do all rough work in this booklet using, where necessary, the blank spaces in the question booklet.
13. You must not take this 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. Evaluating $(-32)^{\frac{1}{5}}$ gives

- A. 2
- B. 5
- C. -2
- D. -5

2. Given that $\log_{10} x = 4$, then the value of x is:

- A. 40
- B. 400
- C. 1000
- D. 10,000

3. Rationalizing $\frac{12}{\sqrt{3}}$ gives:

- A. 4
- B. 12
- C. $12\sqrt{3}$
- D. $4\sqrt{3}$

4. The value of x in $64^x = \frac{1}{16}$ is:

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

5. $(a + \sqrt{b})(a - \sqrt{b}) = :$

- A. $a^2 - b$
- B. $a^2 - b^2$
- C. $a - b^2$
- D. $a - b$

6. Given that the rth term of the sequence -7, -3, 1, ... is 29, then r is:

- A. 8
- B. 9
- C. 10
- D. 11

7. The arithmetic mean of -1000 and -500 is:

- A. -750
- B. 750
- C. -1500
- D. 1500

8. Given that the first term of a GP is 8 and $S_{\infty} = 32$, then the common ratio of the progression is:

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

9. The number of arrangement of the letters of the word ALGEBRA is:

- A. $\frac{7!}{2!}$
- B. $\frac{7!}{2!}$
- C. $\frac{7!}{2!}$
- D. $\frac{7!}{2!}$

10. The number of ways of choosing 3 books from 8 books on a shelf is:

- A. $\frac{8!}{3!5!}$
- B. $\frac{8!}{5!3!}$
- C. $\frac{8!}{3!5!}$
- D. $\frac{3!5!}{8!}$

11. The binomial expansion of $(1 - x)^n$ is:

- A. $1 + nx - \frac{n(n-1)x^2}{2!} + \frac{n(n-1)(n-2)x^3}{3!}$
- B. $1 + nx - \frac{(n-1)x^2}{2!} + \frac{(n-1)(n-2)x^3}{3!}$
- C. $1 - nx + \frac{n(n-1)x^2}{2!} - \frac{n(n-1)(n-2)x^3}{3!}$
- D. $1 - nx - \frac{n(n-1)x^2}{2!} - \frac{n(n-1)(n-2)x^3}{3!}$

12. The fourth term in the binomial expansion of $(1 + x)^7$

- A. $210x^3$
- B. $35x^3$
- C. $210x^4$
- D. $35x^4$

13. The remainder when the expression $x^3 + 3x^2 - x + 1$ is divided by $x - 2$ is:

- A. -91
- B. -19
- C. 19
- D. 91

14. For $(2x + 1)$ to be a factor of the function $f(x)$,

- A. $f\left(\frac{1}{2}\right) = 0$
- B. $f(-2) = 0$
- C. $f(2) = 0$
- D. $f\left(-\frac{1}{2}\right) = 0$

15. The sum of the roots of the quadratic equation $2x - \frac{2}{x} - 1 = 0$ is:

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

15. The nature of the roots of the quadratic equation $x^2 - 10x + 25 = 0$ are:

- A. Equal roots
- B. Distinct roots
- C. Real roots
- D. Complex roots

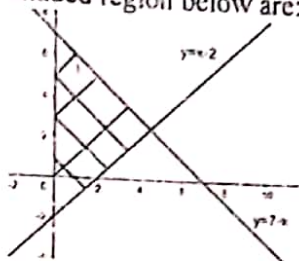
17. Given that $|3x| < 1$, then

- A. $-1 < x < 1$
- B. $-1 < x$, and $x < 1$
- C. $-\frac{1}{3} < x < \frac{1}{3}$
- D. $-\frac{1}{3} < x$, and $x < \frac{1}{3}$

18. Given that $f(x) = ax^2 + bx + c$ and that $a > 0$, then $f(x)$ has minimum value of

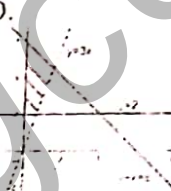
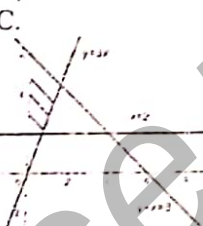
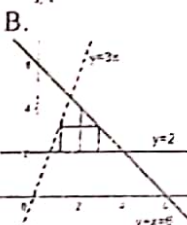
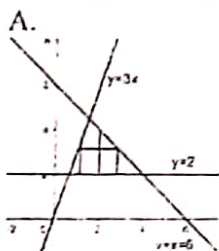
- A. $\frac{4ac-b}{2a}$
 A. $\frac{4ac-b^2}{2a}$
 B. $\frac{4ac-b}{4a}$
 C. $\frac{4ac-b^2}{4a}$

19. The three inequalities representing the shaded region below are:



- A. $x \geq 0, y \geq x - 2, x + y \leq 7$
 B. $x \geq 0, y > x - 2, x + y \leq 7$
 C. $x \geq 0, y \geq x - 2, x + y < 7$
 D. $x > 0, y \geq x - 2, x + y \geq 7$

20. Which of the following shaded regions below defines the constraints $y \geq 2, x + y \leq 6, y < 3$



21. Given that the operation $*$ is defined over $\mathbb{R}$ as $x * y = x + y^2$, then the value of x for which $4 * x = 20$ is:

- A. 16
 B. 8
 C. 4
 D. 2

22. Which of the following defines an Abelian Group?

- A. A Group that is closed.
 B. A Group that is commutative.
 C. A Group that is associative.
 D. A Group that has a subgroup.

23. The identity element of the set

$S = \{I, J, K, L\}$ for the operation table $(*)$ below is:

$*$	I	J	K	L
I	J	I	I	K
J	I	J	K	L
K	L	K	J	I
L	K	L	I	J

- A. L
 B. K
 C. J
 D. I

24. Given the functions

$$f: x \rightarrow \frac{x-1}{x+1} \text{ where } x \neq -1, \text{ and}$$

$$g: x \rightarrow -\frac{1}{x}, x \neq 0, \text{ then } fog(x) \text{ is:}$$

- A. $\frac{1-x}{1+x}$
 B. $\frac{1-x}{1-x}$
 C. $\frac{x+1}{1+x}$
 D. $\frac{1-x}{1+x}$

25. Given the function

$$f: x \rightarrow \frac{1}{x-1}, x \neq 1, x \in \mathbb{R}, \text{ then } f^{-1}(-2) \text{ is:}$$

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

26. Which of the following matrices is singular?

- A. $\begin{pmatrix} 6 & -4 \\ 3 & 2 \end{pmatrix}$
 B. $\begin{pmatrix} 2 & 3 \\ 4 & -6 \end{pmatrix}$
 C. $\begin{pmatrix} 3 & 2 \\ 6 & 4 \end{pmatrix}$
 D. $\begin{pmatrix} -3 & 2 \\ 6 & 4 \end{pmatrix}$

27. The image of the point $(-1, 1)$ under the transformation

$$T: (x, y) \rightarrow (2x + y), (-x + y) \text{ is:}$$

- A. $(3, 2)$
 B. $(-1, 2)$
 C. $(-2, 0)$
 D. $(-3, 2)$

28. The matrix of transformation $T = \begin{pmatrix} 2 & -1 \\ 1 & 1 \end{pmatrix}$ in linear form is:

- A. $T: (x, y) \rightarrow (2x - y, x + y)$
 B. $T: (x, y) \rightarrow (2x - y, -x + y)$
 C. $T: (x, y) \rightarrow (2x + y, -x + y)$
 D. $T: (x, y) \rightarrow (2x + y, x + y)$

29. An invariant point under the transformation matrix $M = \begin{pmatrix} 1 & -1 \\ 1 & 2 \end{pmatrix}$ is:

- A. (1, 1)
- B. (1, 2)
- C. (1, -1)
- D. (0, 0)

30. The perpendicular distance from the origin (0, 0) to the line $3x + 4y + 1 = 0$ is:

- A. 1
- B. $\frac{1}{5}$
- C. $\frac{1}{\sqrt{5}}$
- D. $\sqrt{5}$

31. Given that the line L_1 has gradient m_1 , and the line L_2 has gradient m_2 , then the acute angle between L_1 and L_2 is:

- A. $\frac{m_1 + m_2}{1 + m_1 m_2}$
- B. $\frac{m_1 - m_2}{1 + m_1 m_2}$
- C. $\frac{1 + m_1 m_2}{m_1 - m_2}$
- D. $\frac{1 - m_1 m_2}{m_1 + m_2}$

32. Given that the midpoint of the line joining the points (8, k) and (2, 1) is (5, 2), then the value of k is:

- A. -4
- B. -3
- C. 3
- D. 4

33. The value of $\cos 120^\circ$ =

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

34. The relationship between the sides and angles of the triangle below is:



- A. $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
- B. $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
- C. $\frac{a}{\cos A} = \frac{b}{\cos B} = \frac{c}{\cos C}$
- D. $\frac{a}{\cos A} = \frac{b}{\cos B} = \frac{c}{\cos C}$

35. $\tan(360^\circ - \theta)$ =

- A. $\tan \theta$
- B. $\sin \theta$
- C. $\cos \theta$
- D. $-\tan \theta$

36. The area of the minor sector OAB with angle θ in the diagram below is:



- A. $r\theta$
- B. $\frac{1}{2}r^2$
- C. $r^2\theta$
- D. $\frac{1}{2}r\theta$

37. $\tan 2x$ =

- A. $\frac{\tan x}{1 - \tan^2 x}$
- B. $\frac{\tan x}{1 + \tan^2 x}$
- C. $\frac{2 \tan x}{1 - \tan^2 x}$
- D. $\frac{2 \tan x}{1 + \tan^2 x}$

38. The values of θ for which $\sin \theta = \frac{\sqrt{3}}{2}$ and $0^\circ \leq \theta \leq 360^\circ$ is:

- A. $30^\circ, 150^\circ$
- B. $45^\circ, 135^\circ$
- C. $60^\circ, 150^\circ$
- D. $60^\circ, 120^\circ$

39. Given that the vectors

$\vec{OP} = 3\vec{i} - (t - 4)\vec{j}$ and $\vec{OQ} = 3\vec{i} + 3t\vec{j}$ are parallel, then the value of t is:

- A. -4
- B. -1
- C. 1
- D. 4

40. The angle between the unit vectors (i) and (j) is:

- A. 30°
- B. 180°
- C. 360°
- D. 90°

41. The direction vector in the vector equation $r = \vec{i} - 3\vec{j} + \mu(3\vec{i} + 5\vec{j})$ is:

- A. $3\vec{i} + 5\vec{j}$
- B. $3\vec{i} - 5\vec{j}$
- C. $\vec{i} + 3\vec{j}$
- D. $\vec{i} - 3\vec{j}$

42. The vector equation of the line passing through the points with position vectors $\vec{OP} = 3\vec{i} - 2\vec{j}$ and $\vec{OQ} = 7\vec{i} + 2\vec{j}$ is:

- A. $r = 3\vec{i} + 2\vec{j} + \mu(4\vec{i})$
- B. $r = 3\vec{i} + 2\vec{j} + \mu(4\vec{i} - 4\vec{j})$
- C. $r = 7\vec{i} + 2\vec{j} + \mu(3\vec{i} + 2\vec{j})$
- D. $r = 3\vec{i} + 2\vec{j} + \mu(7\vec{i} + 2\vec{j})$

43. The unit vector in the direction of $\vec{OA} = 3\vec{i} - 4\vec{j}$ is:

- A. $\vec{OA} = 3\vec{i} + 4\vec{j}$

B. $\vec{OA} = 3i - 4j$

C. $\vec{OA} = \frac{3}{5}i + \frac{4}{5}j$

D. $\vec{OA} = \frac{3}{5}i - \frac{4}{5}j$

44. Given that $y = ax^{n-1}$, then $\frac{dy}{dx}$ is:

A. $(n-1)ax^{n-2}$

B. nax^{n-1}

C. $(n+1)ax^{n-1}$

D. $(n+1)ax^{n-2}$

45. Given that $y = \cos(2x + \frac{\pi}{4})$, then $\frac{dy}{dx}$ is:

A. $2\sin(2x + \frac{\pi}{4})$

B. $-\sin(2x + \frac{\pi}{4})$

C. $\sin(2x + \frac{\pi}{4})$

D. $-2\sin(2x + \frac{\pi}{4})$

46. The maximum value of the curve $y = 5x + x^2$ occurs when the value of x is

A. -2

B. 2

C. $\frac{2}{5}$

D. $\frac{5}{2}$

47. $\int_0^2 4dx =$

A. 0

B. 2

C. 4

D. 8

48. $\int \cos \frac{x}{2} dx =$

A. $\frac{1}{2} \sin \frac{1}{2}x + k$

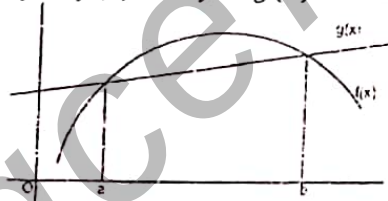
B. $-\frac{1}{2} \sin \frac{x}{2} + k$

C. $-2 \sin \frac{x}{2} + K$

D. $2 \sin \frac{x}{2} + k$

49. An expression for the included area in square units between the curve

$y = f(x)$ and $y = g(x)$ as shown below is:



A. $\int_a^b [f(x) - g(x)] dx$

B. $\int_a^b [f(x) + g(x)] dx$

C. $\int_a^b [g(x) - f(x)] dx$

D. $\int_a^b [g(x) + f(x)] dx$

50. The volume of the solid obtained when the area between the lines $y = 3x$, $x = 0$ and $x = 1$ is rotated about the x-axis is:

A. $\frac{\pi}{3}$ cubic units

B. 3π cubic units

C. π cubic unit

D. $\frac{\pi}{9}$ cubic units.

END

GO BACK AND CHECK YOUR WORK