This paper consists of 60 Multiple Choice items from the Core Syllabus according to the following allocation:

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<th>Section</th>
<th>No. of items</th>
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<td>Number Theory</td>
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<td>Statistics</td>
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<tr>
<td>Algebra</td>
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<tr>
<td>Relations, Functions and Graphs</td>
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<tr>
<td>Geometry and Trigonometry</td>
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<td><strong>Total</strong></td>
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Each item is allocated ONE mark.

The time allowed for this paper is 1 hour 30 minutes.

No calculator is allowed for this paper.
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For each of these items, choose the option (A, B, C or D) that is TRUE.

1. The number 2549 written to 2 significant figures is
   (A) 25
   (B) 26
   (C) 2500
   (D) 2600

2. The decimal equivalent of \( \frac{3}{8} \) is
   (A) 0.125
   (B) 0.3
   (C) 0.375
   (D) 0.38

3. \( 3\frac{1}{5} - 1\frac{3}{10} = \)
   (A) \( 1\frac{4}{5} \)
   (B) \( 1\frac{9}{10} \)
   (C) \( 2\frac{1}{10} \)
   (D) \( 2\frac{9}{10} \)

4. In a school of 910 pupils, \( \frac{2}{5} \) are girls and \( \frac{2}{7} \) of the girls play netball. How many girls play netball?
   (A) 52
   (B) 104
   (C) 260
   (D) 364

5. \( 0.0039 \times 10^{-2} \) in scientific notation is
   (A) \( 3.9 \times 10^{-4} \)
   (B) \( 4 \times 10^{-5} \)
   (C) \( 3.9 \times 10^{-5} \)
   (D) \( 3.9 \times 10^{-6} \)

6. \( x \) is divided among three boys, Romon, Deven and Adam, in the ratio 2 : 3 : 7, respectively.
   If Adam gets $28, what is the value of \( x \) ?
   (A) $48
   (B) $96
   (C) $144
   (D) $192

7. Which of the following sets has a finite number of members?
   (A) \{factors of 40\}
   (B) \{multiples of 40\}
   (C) \{odd numbers greater than 10\}
   (D) \{prime numbers greater than 300\}

8. Which of the following is a prime number?
   (A) 51
   (B) 53
   (C) 55
   (D) 57
9. If \( x = 2^3 \times 5^2 \), then \( x^4 = \)
   (A) \( 2^7 \times 5^6 \)
   (B) \( 2^7 \times 5^8 \)
   (C) \( 2^{12} \times 5^6 \)
   (D) \( 2^{12} \times 5^8 \)

10. Three lights flash at intervals of 2, 6 and 14 seconds respectively. They are started together. How soon after will they next flash together again?
   (A) 28 secs
   (B) 42 secs
   (C) 84 secs
   (D) 168 secs

11. After a 5\% discount, an article is sold for $475. The price before the discount was
   (A) $425
   (B) $450
   (C) $500
   (D) $525

12. A store charges 15\% VAT on all sales. What is the total cost of a TV set marked at $300?
   (A) $255
   (B) $300
   (C) $330
   (D) $345

13. A shopkeeper buys 24 CD players for a wholesale price of $1800. At what price per CD player must she sell to make a profit of 10\% on her cost?
   (A) $67.50
   (B) $82.50
   (C) $90.00
   (D) $100.00

14. The interest rate on investments in a bank increased from 5 per cent per annum to 6\frac{1}{2} per cent per annum. The difference in annual interest on a deposit of $4000 is
   (A) $30
   (B) $50
   (C) $60
   (D) $120

15. The marked price of a bicycle was $260. A man bought the bicycle on hire-purchase by making a down payment of $100, and twelve monthly payments of $16 each. How much could he have saved if he had bought the bicycle for the marked price?
   (A) $16
   (B) $32
   (C) $48
   (D) $64

16. How much simple interest is due on a loan of $240 for two years if the annual rate of interest is 4 per cent?
   (A) $8.80
   (B) $10.00
   (C) $13.20
   (D) $19.20

17. The water authority charges $20.00 per month for the meter rent, $2.00 for the first 1000 litres and $0.20 for each additional 100 litres. What is the total bill for 2400 litres used in one month?
   (A) $24.80
   (B) $25.00
   (C) $28.80
   (D) $30.00
18. If US$1.00 is equivalent to J$120.00, how much in US$ would one get for J$9600?
   (A) $ 40.00
   (B) $ 80.00
   (C) $ 96.00
   (D) $120.00

19. If \( U = \{1, 2, 3, \ldots, 10\} \) and \( S = \{2, 4, 6, 8, 10\} \), then \( S' = \)
   (A) \{1\}
   (B) \{1, 3, 5, 7\}
   (C) \{1, 3, 5, 7, 9\}
   (D) \{1, 2, 3, 4, 5, 6, 7, 8, 9\}

20. In the Venn diagram above, the shaded portion represents
   (A) \( P \cup Q \)
   (B) \( P \cap Q' \)
   (C) \( P' \cap Q \)
   (D) \( P' \cap Q' \)

21. The shaded area in the Venn diagram above represents
   (A) \( (P \cup Q) \cup R \)
   (B) \( (P \cap Q) \cup R \)
   (C) \( P \cap (Q \cup R) \)
   (D) \( P \cap Q \cap R \)

22. In the figure above, the shaded portion represents
   (A) \( (X \cap Z) \cup Y \)
   (B) \( (X \cap Y) \cup Z \)
   (C) \( (X \cup Y) \cap Z \)
   (D) \( (Y \cap Z) \cup X \)

23. How many grams are in 2.5 kilograms?
   (A) 25 g
   (B) 250 g
   (C) 2 500 g
   (D) 25 000 g

24. A rectangular tank is 50 cm long, 50 cm wide and 10 cm deep. The volume of liquid it will hold is
   (A) 2.5 litres
   (B) 25 litres
   (C) 250 litres
   (D) 2500 litres

25. The area of the trapezium ABCD above is
   (A) 16 cm\(^2\)
   (B) 17.5 cm\(^2\)
   (C) 18 cm\(^2\)
   (D) 19.5 cm\(^2\)
UNIT 40.1.2 CSEC Multiple Choice Items

Sample Paper 01

26. Which of the following words BEST describes a triangle with all its sides equal?
   (A) Scalene  
   (B) Isosceles  
   (C) Equilateral  
   (D) None of these

27. A square has the same area as a rectangle with sides of length 4 centimetres and 25 centimetres. What is the length of the square?
   (A) 9 cm  
   (B) 10 cm  
   (C) 16 cm  
   (D) 20 cm

28. In the circle above, the circumference is 10 cm. The length of the arc AB, in centimetres, is
   (A) \( \frac{1}{8} \times 10 \)  
   (B) \( \frac{1}{4} \times 10 \)  
   (C) \( \frac{3}{8} \times 10 \)  
   (D) \( \frac{1}{2} \times 10 \)

29. A circular hole with diameter 4 cm is cut out of a circular piece of card with a diameter of 16 cm. The area of the remaining card, in \( \text{cm}^2 \), is
   (A) \( 12\pi \)  
   (B) \( 60\pi \)  
   (C) \( 144\pi \)  
   (D) \( 240\pi \)

30. The width of a block of wood with rectangular cross-section is \( x \) cm. Its height is \( \frac{3}{4} \) its width and its length is 3 times its height. What is its volume in \( \text{cm}^3 \)?
   (A) \( \frac{9}{4}x^3 \)  
   (B) \( \frac{4}{9}x^3 \)  
   (C) \( x^3 \)  
   (D) \( \frac{9}{4}x^3 \)

31. The pie chart above shows how a student used 10 hours per week for studying English (E), Mathematics (M), French (F) and Geography (G). The amount of hours spent studying French is approximately
   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4
UNIT 40.1.2  CSEC Multiple Choice Items

Sample Paper 01

Items 32 and 33 refer to the information below

The following scores were obtained by eleven footballers in a goal-shoot competition:

\[
\begin{align*}
5 & 3 & 6 & 8 & 7 & 8 \\
3 & 11 & 6 & 8 & 2
\end{align*}
\]

32. The modal score was
(A) 3
(B) 6
(C) 8
(D) 11

33. The median score was
(A) 3
(B) 6
(C) 8
(D) 11

34. The mean of five numbers is 42. If one of the numbers is 30, what is the mean of the other four?
(A) 12
(B) 32
(C) 45
(D) 180

35. The table shows the distribution of the ages of 25 students.

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<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
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<td>5</td>
<td>4</td>
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<td>3</td>
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</table>

What is the probability that a student chosen at random is AT LEAST 14 years old?

(A) \( \frac{4}{25} \)
(B) \( \frac{7}{25} \)
(C) \( \frac{11}{25} \)
(D) \( \frac{18}{25} \)

36. In a box, there are 4 white, 3 red and 2 blue marbles. What is the probability that a marble taken at random is NOT red?

(A) \( \frac{1}{3} \)
(B) \( \frac{4}{9} \)
(C) \( \frac{5}{9} \)
(D) \( \frac{2}{3} \)

37. If \( x = -2 \) and \( y = 3 \), then \( \frac{3x - 5y}{x^2y} = \)
(A) \( \frac{-7}{4} \)
(B) \( \frac{-3}{4} \)
(C) \( \frac{3}{4} \)
(D) \( \frac{7}{4} \)

38. \( -5 - (-2)^2 = \)
(A) \(-9\)
(B) \(-1\)
(C) \(1\)
(D) \(9\)

39. If \( p \times q = pq^2 \), then \( 4 \times 5 = \)
(A) \(20\)
(B) \(80\)
(C) \(100\)
(D) \(400\)
UNIT 40.1.2 CSEC Multiple Choice Items

Sample Paper 01

40. \( \frac{2x + 1}{3} - \frac{x + 2}{6} = \)
(A) \( \frac{x + 1}{6} \)
(B) \( \frac{x - 1}{6} \)
(C) \( \frac{3x + 4}{6} \)
(D) \( \frac{x}{2} \)

41. If \( x \) is an even number, which of the following is also even?
(A) \( x + 1 \)
(B) \( x + 4 \)
(C) \( 2x + 1 \)
(D) \( 3x + 1 \)

42. \( 5x - 3(x - 2) = \)
(A) \( 8x + 6 \)
(B) \( 2x - 6 \)
(C) \( 2x + 6 \)
(D) \( 8x - 6 \)

43. \( 3(x - 2) - 2(7 - x) = \)
(A) \( x - 20 \)
(B) \( 5x - 16 \)
(C) \( 4x - 16 \)
(D) \( 5x - 20 \)

44. The expression \( (2x - 1)(3x - 2) = \)
(A) \( 6x^2 - 7x + 2 \)
(B) \( 6x^2 - 7x - 2 \)
(C) \( 6x^2 - 5x + 2 \)
(D) \( 6x^2 - x + 2 \)

45. The range of values of \( v \) when \( 3 - 2v \leq v - 9 \) is
(A) \( v \leq -12 \)
(B) \( v \geq 12 \)
(C) \( v \leq 4 \)
(D) \( v \geq 4 \)

46. In the figure above, for which point is the \( x \)-coordinate negative and the \( y \)-coordinate positive?
(A) \( P \)
(B) \( Q \)
(C) \( R \)
(D) \( S \)
UNIT 40.1.2  CSEC Multiple Choice Items  
Sample Paper 01

47. The diagram above shows the graphs of 
y = 3x - 2 and x + y = 2.
Which ordered pair (x, y) satisfies both equations?
(A) (2, 0)
(B) (1, 1)
(C) (0, 2)
(D) (0, -2)

48. Which of the following relations is represented by the graph shown above?
(A) y - x - 2 = 0
(B) y - x + 2 = 0
(C) x + y - 2 = 0
(D) x + y + 2 = 0

49. The equation of the line which passes through the point (4, 0) and has a gradient of \(\frac{1}{4}\) is
(A) \(y = \frac{1}{4}x - 1\)
(B) \(y = \frac{1}{4}x + 1\)
(C) \(y = 4x - 1\)
(D) \(y = 4x + 1\)

50. If \(f : x \rightarrow x^2 - 4\), then \(f(-2)\) is
(A) -20
(B) 0
(C) 12
(D) 16

51. Which of the relations represented below are functions?
(A) I and II only
(B) I and III only
(C) III only
(D) I, II and III

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52. The sizes of the interior angles of a polygon are \(x^\circ, 2x^\circ, 2x^\circ, 110^\circ, 120^\circ\) and \(140^\circ\). What is the value of \(x\)?
   (A) 34
   (B) 60
   (C) 70
   (D) 140

53. The interior angles of a regular polygon are half the size of the exterior angles. How many sides does the polygon have?
   (A) 3
   (B) 4
   (C) 5
   (D) 6

54. In the rectangle above, if \(\angle AEB = 40^\circ\), then \(\angle DAC = \)
   (A) 10°
   (B) 20°
   (C) 40°
   (D) 80°

55. In the diagram, \(B\) is due south of \(A\); \(C\) is east of \(B\), and \(AB = BC\).
   What is the bearing of \(A\) from \(C\)?
   (A) 045°
   (B) 135°
   (C) 225°
   (D) 315°

56. In the figure above, \(AB \parallel CD\) and \(\angle APC = 70^\circ\). \(\angle BAD = \)
   (A) 25°
   (B) 35°
   (C) 70°
   (D) 110°
57. This question refers to the triangle $PQR$ in which angle $QPR = 90^\circ$, $PR = 15$ cm and $PQ = 8$ cm.

The length of $QR$, in cm, is

(A) 17
(B) 19
(C) 21
(D) 23

58. The triangle $ABC$ above shows the angle of elevation of the top, $B$, of a tower, $BC$, from $A$, to be $30^\circ$. $AB = 40$ m. The length of $AC$ is

(A) $40 \tan 30^\circ$
(B) $40 \sin 60^\circ$
(C) $40 \cos 30^\circ$
(D) $40 \sin 30^\circ$

59. How many lines of symmetry does this shape have?

(A) 0
(B) 1
(C) 2
(D) 4

60. When rotated through $90^\circ$ about the origin in an anti-clockwise direction, the image of the point $(1, 2)$ is

(A) $(2, 1)$
(B) $(2, -1)$
(C) $(-1, -2)$
(D) $(-2, 1)$
### UNIT 40.1.2 CSEC Multiple Choice Items

#### Sample Paper 01

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#### Sample Paper 01

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</tbody>
</table>