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★ ★
10TH
edition

**THE
ULTIMATE
MATHEMATICS
AMBASSADOR
2022** 
(Annual Mathematics Competition)

STAGE 2 - WRITTEN TEST

TIME ALLOWED: 1 hour 30 minutes

INSTRUCTIONS

1. This paper is in two sections (A and B)
2. You are to answer all the questions in the two sections
3. SECTION A consists of 20 multiple-choice questions. Each question in this section is worth 2 marks
4. Use HB pencil ONLY to shade the appropriate answer from the options labelled A to E in the appropriate section of the answer sheet.
5. Below is a sample of how to shade correctly. For instance, if your answer to a question is option B then shade as indicated. | (A) ● (C) (D) (E) |
6. Do not shade more than one option for each question. If you make a mistake, erase neatly with an eraser and then shade your new option.
7. SECTION B consists of 4 theory questions. This section is worth 40 marks.
8. Orderliness, neatness and clarity is encouraged.

SECTION A

INSTRUCTION: Answer all questions in this section. Pick the appropriate answer from the options lettered A to E.

1. A triangle that has no angles equal is called a/an _____ triangle.
(a) scalene (b) equilateral (c) bimetrical
(d) isosceles (e) asymptotic

2. What is the Highest Common Factor (H.C.F.) of 30, 45, 68 and 100?
(a) 17 (b) 5 (c) 3
(d) 2 (e) 1

3. A salesman receives a commission of 7% on every item sold. How much will he get for selling two items of each costing ₦140 000.00?
(a) ₦4 900.00 (b) ₦9 800.00 (c) ₦14 000.00
(d) ₦19 600.00 (e) ₦21 400.00

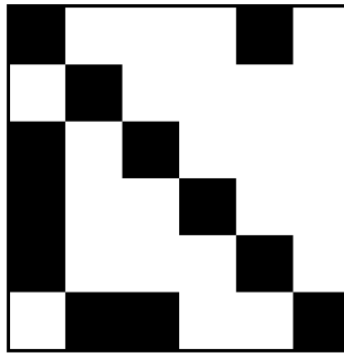
4. Find the cost of 50 hectares of land sold \$30.00 per 100 square metres.
(a) \$30 000.00 (b) \$20 000.00 (c) \$15 000.00
(d) \$12 500.00 (e) \$7 500.00

5. Find the mean salary of four workers that earn ₦320 000, ₦280 000, ₦360 000 and ₦240 000 respectively.
(a) ₦270 000 (b) ₦280 000 (c) ₦290 000
(d) ₦300 000 (e) ₦310 000

6. Simplify: $\frac{\frac{1}{2} + \frac{1}{2} \text{ of } \frac{3}{5}}{20}$
- (a) $\frac{1}{25}$ (b) $\frac{2}{25}$ (c) $\frac{7}{20}$
(d) $\frac{3}{20}$ (e) $\frac{7}{100}$
7. A boy spent $\frac{2}{3}$ of his pocket money on books. $\frac{2}{5}$ of this was spent on notebooks, while the rest was spent on textbooks. What percentage of his pocket money did he spend on textbooks?
- (a) 50% (b) 40% (c) $33\frac{1}{3}\%$
(d) 25% (e) 10%
8. Find the sum of $\frac{3}{8}$ of 1.6 million Naira and $\frac{2}{5}$ of half of the same amount of money.
- (a) ~~₦~~1 000 000.00 (b) ~~₦~~975 000.00 (c) ~~₦~~920 000.00
(d) ~~₦~~780 000.00 (e) ~~₦~~550 000.00
9. What is the simple interest on £700.00 invested for five years at the rate of 5% every six months?
- (a) £87.50 (b) £175.00 (c) £350.00
(d) £44.00 (e) £700.00
10. Find the volume of a prism with cross-sectional area of 231cm^2 and length 5cm.
- (a) 236cm^3 (b) 385cm^3 (c) 750cm^3
(d) 1035cm^3 (e) 1155cm^3
-

11. The floor of a classroom is covered with square tiles. Each tile measuring 24cm in length. If the room is 27.6m long, how many tiles will be needed to cover the length of the room?
- (a) 1.15 (b) 5.16 (c) 99
(d) 115 (e) 516
12. What should be added to $1\frac{2}{3}$ of a gross to make 16 scores?
- (a) 100 (b) 80 (c) 60
(d) 40 (e) 20
13. Musa and Tony shared the cash prize won from a mathematics competition. Tony received ₦270,000.00 while Musa received $\frac{8}{9}$ of Tony's share. How much was the total cash prize that was shared?
- (a) ~~₦~~150 000.00 (b) ~~₦~~240 000.00 (c) ~~₦~~320 000.00
(d) ~~₦~~450 000.00 (e) ~~₦~~510 000.00
14. The number of pencils owned by the 9 pupils in a class are:
2, 0, 1, 3, 0, 3, 3, 1, 2
- Which statement about the mean, median, and mode is true?
- (a) median < mean < mode (b) mean < mode < median
(c) mean < median < mode (d) median < mode < mean
(e) mode < median < mean

15. In the figure below, all black squares are the same size. What fraction of the figure is shaded?



- (a) $\frac{1}{3}$ (b) $\frac{2}{9}$ (c) $\frac{1}{5}$
(d) $\frac{5}{12}$ (e) $\frac{3}{4}$
16. What time was it 2022 minutes after midnight on January 1, 2022?
(a) January 1 at 9:42pm (b) January 1 at 11:52pm
(c) January 2 at 3:02pm (d) January 2 at 9:42am
(e) January 2 at 11:52am
17. A rectangle and a square have the same perimeter. Find the area of the square if the rectangle has length 12cm with an area of 120cm^2 .
(a) 144cm^2 (b) 121cm^2 (c) 120cm^2
(d) 100cm^2 (e) 64cm^2
18. A coin of radius 7cm was rolled on a table of side 4.5m long. How many full turns will the coin make on the table before it falls off?
(a) 9 (b) 10 (c) 11
(d) 12 (e) 13

19. In the year 2018, the population of a school increased by 25% and became 2000. The population reduced by 10% in 2019. By how much is the population of the town in 2019 more or less than the population of the town in 2017?

- (a) 250 more (b) 200 more (c) 150 more
 (d) 200 less (e) 250 less

20. Figure 1 is called a “stack map”. The numbers tell us how many cubes are stacked in each position. Figure 2 shows these cubes. Figure 3 show the view of the stacked cubes as seen from the front.

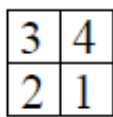


Figure 1

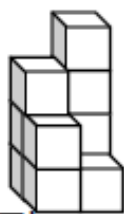


Figure 2

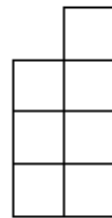


Figure 3

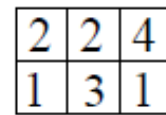
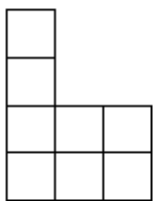
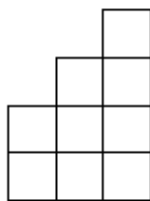


Figure 4

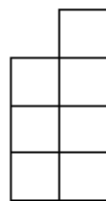
Figure 4 shows another stack map. Which of the following is the front view for the stack map in Figure 4?



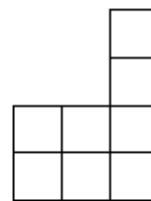
(a)



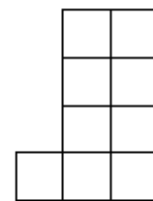
(b)



(c)



(d)

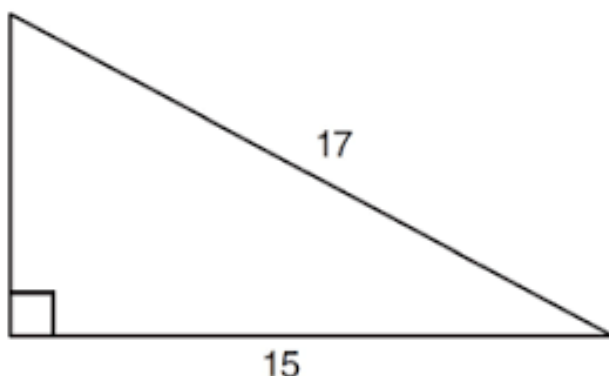


(e)

SECTION B

INSTRUCTION: Answer all questions in this section. Show all your workings in this section clearly, neatly and orderly.

1. (a) Give one (1) difference and one (1) similarity between a square and a rhombus?
- (b) Find the area of the right-angled triangle shown below



(10 marks)

2. Gilda has a bag containing 250 bars of chocolate. She gives 20% of them to her friend Pedro. Then Gilda gives 10% of what is left to another friend, Ebony. Finally, Gilda gives 25% of what is now left in the bag to her brother Jimmy.
- (a) What percentage of her original bag of chocolate does Gilda have left for herself?
- (b) If Gilda now consumes the 4 bars of chocolate per day, every day of the week, starting on a Tuesday, on what day of the week will Gilda empty the bag of chocolate?

(10 marks)

3. The total weight of twenty-five sacks of rice is 1.5 tonnes. The average weight of five of them is 120kg. find the average weight of the other twenty sacks.

(10 marks)

4. Below is a “Mini-Sudoku”. It is completed by making sure that each row, each column, and each block of 4 squares have all the digit 1, 2, 3 and 4.

3		4	
a	1		2
	4		3
2	b	1	

- (a) Copy and complete the Mini-Sudoku
 (b) What is the value of $a \times b$?

(10 marks)