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10TH edition

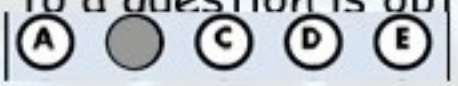
THE ULTIMATE MATHEMATICS AMBASSADOR 2022

TUMA

(Annual Mathematics Competition)

TIME ALLOWED: 1 hour 30 minutes

INSTRUCTIONS

1. This paper is in three sections (A, B and C).
2. You are to answer all the questions in the three sections
3. SECTION A consists of 40 multiple-choice questions. Each question in this section is worth 1.5 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. 

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 10 questions. You are to write only the answer to the questions in this section. Each question is worth 3 marks.
8. SECTION C consists of 2 theory questions. This section is worth 10 marks.
9. 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. What is the place value of 4 in 16 458 385?

   (a) 4 thousands (b) 4 tens (c) 4 units

   (d) 4 million (e) 4 hundred thousand

2. Express 14.2 as a fraction in its lowest form.

   (a) $14\frac{2}{5}$ (b) $\frac{142}{100}$ (c) $14\frac{1}{2}$

   (d) $14\frac{1}{5}$ (e) 71

3. Change $\frac{1}{8}$ to a percentage.

   (a) 100% (b) 80% (c) 50%

   (d) 35% (e) 12.5%

4. Express 72 as a product of its prime factors.

   (a) $2 \times 3 \times 5$ (b) $2^2 \times 3^3$ (c) $2^3 \times 3^2$

   (d) 2×7^2 (e) $2 \times 3^2 \times 17$

5. Find the area of a rectangular field of 80m by 60m.

   (a) 4 800m^2 (b) 5 200m^2 (c) 6 000m^2

   (d) 8 000m^2 (e) 14 400m^2

6. What is the difference between the number of lines of symmetry of a rhombus and that of a kite?

(a) 0 (b) 1 (c) 2

(d) 3 (e) 4

7. Find the median of 17, 14, 16, 32, 9, 45, 22.

(a) 9 (b) 16 (c) 17

(d) 25.5 (e) 32

8. A cuboid has how many faces?

(a) 6 (b) 5 (c) 4

(d) 3 (e) 0

9. A polygon with nine sides is called a _____

(a) ninegon (b) nonagon (c) tentagon

(d) heptagon (e) pentagon

10. Find the result when the Lowest Common Multiple (L.C.M.) of 60, 90 and 120 is divided their Highest Common Factor (H.C.F.)

(a) 24 (b) 12 (c) 8

(d) 6 (e) 4

11. Kingsley and Kate share their pocket money of ₦9 000.00 in the ratio 5:3. Find the difference between the shares they receive.

(a) ₦2 250.00 (b) ₦2 500.00 (c) ₦3 000.00

(d) ₦3 200.00 (e) ₦4 500.00

12. There are twenty-four maths teachers in a school whose student population is 720. How many students, on average, will each maths teacher teach?

(a) 40 (b) 35 (c) 30

(d) 25 (e) 20

13. What is the ratio of the area of two squares 3cm and 11cm?

(a) 3:11 (b) 3:8 (c) 9:11

(d) 9:81 (e) 9:121

14. Evaluate $40.63 - 253.7 + 769.1 - 0.354$.

(a) 0 (b) 395.531 (c) 480.543

(d) 555.676 (e) 669.151

15. Find the circumference (in metres) of circular wheel of radius 280cm.

(a) 17.6m (b) 15.4m (c) 10.5m

(d) 8.8m (e) 2.464m

16. Find the simple interest gained on a principal of ₦500 000.00 invested for three years at a rate of 5% per annum.

(a) ₦100 000.00 (b) ₦75 000.00 (c) ₦60 000.00

(d) ₦45 000.00 (e) ₦28 500.00

17. Find the height of a triangle of area $147cm^2$ with base 6cm.

(a) 74cm (b) 60cm (c) 52cm

(d) 49cm (e) 45cm

18. Find the selling price of a pair of shoes bought for ₦9 000.00 but sold at a loss of 15%.

(a) ₦9 150.00 (b) ₦8 850.00 (c) ₦8 550.00
(d) ₦7 650.00 (e) ₦7 500.00

19. A shop running Christmas Sales offers a discount of 5% on items purchased from it. How much will a customer pay for Christmas goods worth of ₦70 000.00?

(a) ₦77 000.00 (b) ₦66 500.00 (c) ₦65 000.00
(d) ₦63 000.00 (e) ₦60 000.00

20. Mr Emeka paid an interest of $1 800.00 on the $6 000.00 he borrowed for 3 years. At what rate per annum was he lent the money?

(a) 10% (b) 12.5% (c) 15%
(d) 20% (e) 25%

21. A rectangular lawn has a length of 40cm. Its length is four times its width. Find the perimeter of the lawn.

(a) 400m (b) 200m (c) 160m
(d) 100m (e) 80m

22. How much distance does a snake that moves at 18km/hr cover in 40 minutes?

(a) 58km (b) 24km (c) 16km
(d) 12km (e) 7.2km

23. The net of a cylinder when opened will reveal a _____ and two _____.

(a) circle, triangle (b) cone, rectangles (c) rectangle, circles
(d) triangle, circles (e) parallelogram, triangles

24. What is the sum of the three highest single-digit prime numbers?

(a) 21 (b) 18 (c) 15
(d) 12 (e) 10

25. A period of two centuries and three decades is equal to _____ years.

(a) 2300 (b) 2036 (c) 2030
(d) 236 (e) 230

26. 6 men can finish clearing a field in 2 weeks. In how many days will 4 men clear the same field if they work at the same rate?

(a) 64 days (b) 21 days (c) 16 days
(d) 9 days (e) 3 days

27. Find the sum of 7 weeks 2 days, 5 weeks 6 days and 3 weeks.

(a) 16 weeks, 1 day (b) 15 weeks, 4 days (c) 14 weeks 5 days
(d) 13 weeks (e) 12 weeks, 11 days

28. Divide 54 by the difference between the product of 3 and 6 and the square root of 81.

(a) 12 (b) 9 (c) 7
(d) 6 (e) 3

29. If I multiply the sum of 301, 801 and 498 by a certain number, my result is $\frac{2}{5}$.

(a) $\frac{1}{5000}$ (b) $\frac{1}{4000}$ (c) $\frac{1}{3000}$

(d) $\frac{1}{2000}$ (e) $\frac{1}{1000}$

30. Find the square root of 3.24.

(a) 29 (b) 4 (c) 2.2

(d) 1.9 (e) 1.8

31. Find a number that reduces to 72 when decreased by 20%.

(a) 100 (b) 90 (c) 80

(d) 75 (e) 60

32. An Uber Ride is charged as follows:

A fixed charge of ₦300 for using the Uber Service.

A charge of ₦650 for the first 10km travelled.

An extra charge of ₦50 per km for any additional km travelled.

Find the cost of Mr Abdulmalik's 29km Uber Ride to his place of work.

(a) ₦8 250.00 (b) ₦7 750.00 (c) ₦5 000.00

(d) ₦2 400.00 (e) ₦1 900.00

33. Simplify: $8(x + y) - 3(2x - 3)$.

(a) $2x + 8y + 9$ (b) $2x + 8y - 9$ (c) $14x + 8y + 6$

(d) $5x + 8y + 9$ (e) $5x + 8y - 9$

34. A child is born on May 25. How many days old will she be on the 24th of September?

(a) 124 (b) 123 (c) 122

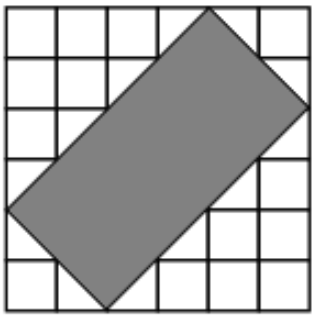
(d) 121 (e) 120

35. A dictionary contains 480 pages of content. Find the number of sheets of paper contained in a pile of 360 of such dictionaries.

(a) 86 400 (b) 96 800 (c) 145 000

(d) 168 800 (e) 172 800

36. The sketch shows a carpet on a tile floor. What fraction of the floor is not covered by the carpet?



(a) $\frac{11}{18}$ (b) $\frac{7}{18}$ (c) $\frac{4}{9}$

(d) $\frac{5}{9}$ (e) $\frac{26}{36}$

37. The total weight of 25 sacks of rice is one and half tonnes. The average weight of five of them is 120kg. Find the average weight of the remaining sacks.

(a) 45kg (b) 50kg (c) 55kg

(d) 60kg (e) 480kg

38. A concert ticket costs £20 per person. The concert hall has a capacity of 500 people. If the hall is full to capacity, what is the total amount realized if 20% of the audience were given a discount of 30%?

(a) £10 000 (b) £9 400.00 (c) £8 500.00

(d) £7 600.00 (e) £7 000.00

39. How many cubes of side 3cm can be used to fill a cuboid of dimensions 1m by 18cm by 9cm?

(a) 6000 (b) 600 (c) 60

(d) 6 (e) 0.6

40. A father has the same birthday as his son. The father will be five times his son's age in 2025. How old was the father two years ago if the son is 8 years old now (year 2022)?

(a) 40 years old (b) 44 years old (c) 48 years old

(d) 50 years old (e) 52 years old

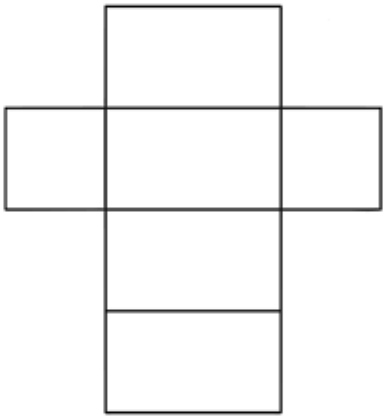
SECTION B

INSTRUCTION: *Answer all questions in this section. Write ONLY the answer to each question in this section in the appropriate space provided in the answer sheet.*

41. Find the square root of the square of 10.

42. Dr Chidi wrote a cheque to pay for the sum of three million, three thousand and three Naira instead of writing three million, thirty-three thousand Naira. By how much has he underpaid?

43. The figure below shows the net of which 3-D Shape?

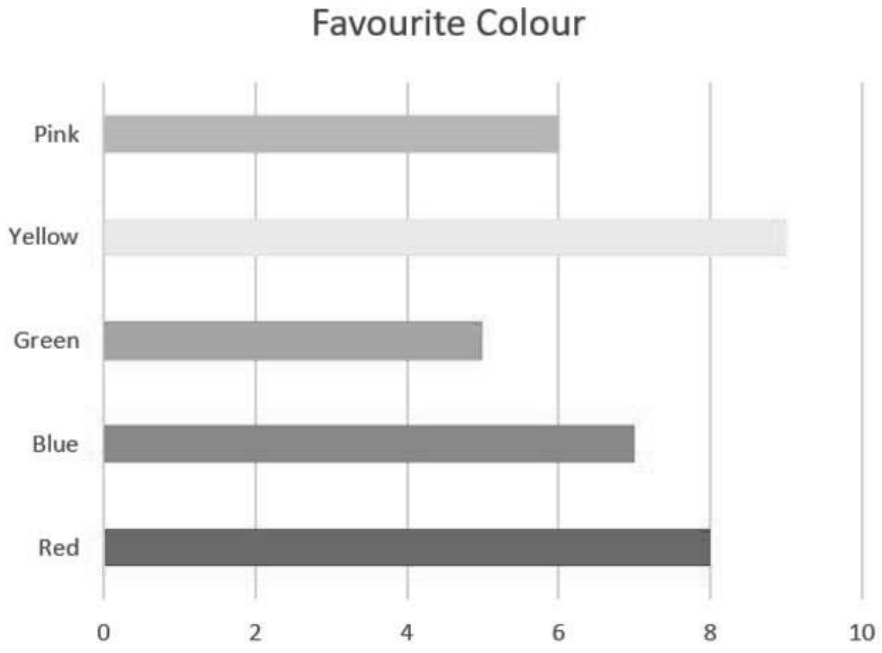


44. I think of a number. I divide it by 19 then add 12. My result is 20. What number did I think of?

45. A circle has circumference of 88cm. What is the circumference of another circle whose radius is three times longer?

46. Name one quadrilateral whose diagonals bisects each other at 90^o.

47. Each pupil in a class was asked to select a favourite colour. The results are shown in the bar chart below. How many pupils were in the class?



48. What is the name given to a triangle that has two equal angles?

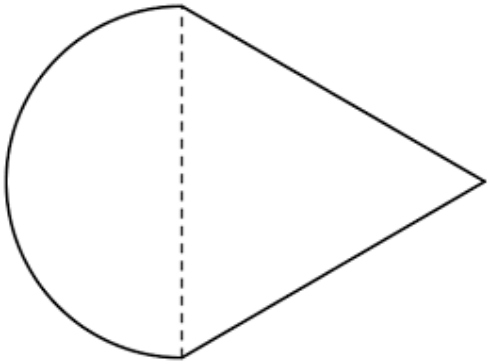
49. The mean of three numbers is 5. Find the least number in the set if the mode is 6.

50. Find the sum of $1^2, 2^2, 3^2, 4^2, 5^2$ and 6^2.

SECTION C

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

1. A Children's Playground is to be built in the shape below.



It consists of a semicircle and an equilateral triangle of side 7m. Calculate the perimeter of the Playground.

(5 marks)

2. The expression below is written in Roman Numerals.

$$\frac{XXIV + XL}{IX \times IV - IV} \times III$$

Simplify it and give your final answer in tally form.

(5 marks)