20584

MATAMAITIC - PÁIPÉAR I

MATHEMATICS - PAPER I

UIMH. SCR.

EXAM. NO.

Má bhíonn spás ag teastáil uait i gceist ar bith le haghaidh ríomhacháin, bain úsáid as an spás atá anseo thíos *a bhfuil uimhir na ceiste ag dul leis*. Na déan dearmad do fhreagra deiridh ar an gceist a bhreacadh isteach sa spás atá ina chomhair ar an gceistpháipéar. Moltar duit an bhileog seo a chur ar ais leis an gceistpháipéar.

If you need space for calculations in any question, use the space below *marked with the number of that question*. Do not forget to write your final answer in the space provided on the question paper.

You are advised to return this sheet with the question paper.

1.	2.
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INSTRUCTIONS

(a) Before attempting to answer any question you should write your Examination Number in the space provided on top of this page and also on the ruled paper provided.

(b) Final answers are to be written down in the spaces provided on this paper.   Space is provided on the ruled page for any other work you may wish to do.

(c) Mathematical Tables may be used in answering this paper.   Ask the Superintendent for the tables when you need them.

(d) All questions may be answered and you should attempt as many as possible.

(e) Questions 1 to 10 carry 1 mark each, questions 11 to 30 carry 2 marks each.

(f) Before attempting to answer any question you should read the instructions on top of the ruled sheet provided.

1. What is the value of 0.45×1000 ?   Ans. _____

2. How much is $\frac{2}{3}$ of 45 ?   Ans. _____

3. Calculate 30% of 120.   Ans. _____

4. Write out the set $\{1, 2, 3, 5, 7, 9\} \cap \{7, 2, 8, 4, 9\}$ Ans. _____

5. Express the denary number 13 in binary form.   Ans. _____

6. From your tables write down the value of $\sin 31°$.   Ans. _____

7. The measures of some of the angles shown are given in the diagram.   What is the value of y ?

Ans. _____

8. Write out the elements of $\{x \mid 3 < x < 7, x \in Z\}$ Ans. _____
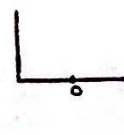
9. If $x = \frac{1}{2}$ what is the value of $8x^2$?   Ans. _____

10. Write down the following expression in its simplest form:
$3x + 2 + 4x - 1 - 5x + 4 + x - 3.$ Ans. _____

11. If I put £500 in the bank at a simple interest rate of 8%, how much interest do I get each year ?   Ans. _____

12. Write in its simplest form the result of the sum: $\frac{5}{6} + \frac{7}{10} + \frac{7}{15}$ Ans. _____

13. Sketch the image, in an anti–clockwise rotation of 90° about the point o, of the set of points shown in the diagram.

14. A typist can type addresses on 25 envelopes in 13 minutes.   If she starts at 9.30 a.m. and takes a 10–minutes tea–break at 11.00 a.m.; at what time will she have typed the addresses on 250 envelopes ?   Ans. _____
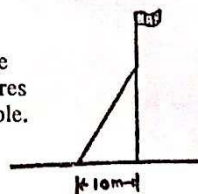
15. With the aid of tables write down the value of $\log 54.7$.   Ans. _____

16. What is the value of k when $x = 10$ and $y = 4$, if $k = 3x - 5y$?   Ans. _____

17. A prize fund of £600 is divided among the first, second and third prizes in the ratio 7 : 4 : 1.   How much is the first prize ?   Ans. _____

18. Given that a, b and c are natural numbers such that $a^2 + b^2 = c^2$, what is the value of c when $a = 8$ and $b = 6$?   Ans. _____

19. A 20–metre guy rope is connected to a vertical flag–pole at $\frac{2}{3}$ of its height and is pegged to the ground 10 metres from the pole. Calculate the full height of the flag–pole.

Ans. _____

OVER →

20. Factorise $x^2 + 9x + 20$.

Ans. _____

21. What is the least length of rope which could be cut exactly into strips of equal lengths of either 4, 5 or 6 cm ?
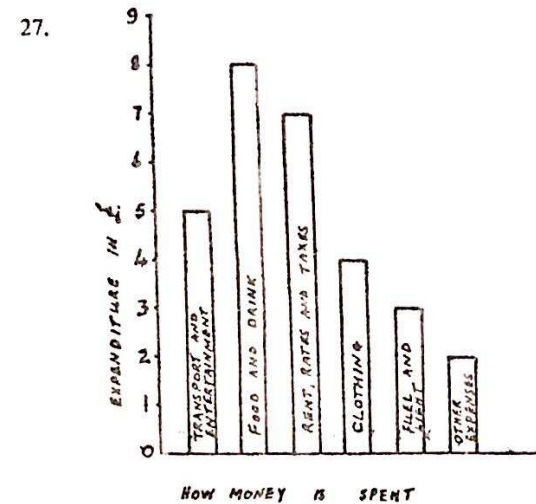
Ans. _____

22. Remove the brackets and simplify $3(2x + 5) - 2(2x - 3)$.

Ans. _____

23. Multiply $3 \cdot 1 \times 10^7$ by 5×10^{-4} giving your answer in the same standard scientific notation form.

Ans. _____

24. Simplify $(4x^3)^2$.

Ans. _____

25. Five candidates took an examination paper and the average of the marks they obtained was 50. How many marks did the fifth candidate obtain if the other four got 70, 45, 30, 45 marks ?

Ans. _____

26. A train travels from Cork to Dublin in $2\frac{3}{4}$ hours at an average speed of 96 kilometres per hour. What is the distance from Cork to Dublin by rail ?

Ans. _____

27.

HOW MONEY IS SPENT

A man earns £32 per week. The bar-chart shows how he spends his money on an average week. How much money does he save in such a week ?

Ans. _____

28. An aquarium tank is 50 cm long, 30 cm wide and 40 cm deep. How many litres of water can it hold ?

Ans. _____

29. When asked to find the solution set of $(5x + 2)(x - 4) = 0$, Kevin got {0·4, 4}, Siobhan got {0·8, 2}, John's answer was {2, −0·8}, Mary's was {4, −0·4} and Brian's was {0·4, −4}. Who gave the correct solution set ?

Ans. _____

30. It requires 120 journeys by a $4\frac{1}{2}$-tonne truck to shift a mound of rubble from a demolition site. If a 6-tonne truck had been used how many journeys would have been necessary ?

Ans. _____

NOTE TO EXAMINATION CANDIDATE

If you still have examination time left you are advised to spend it checking your answers and correcting any mistakes you have made.