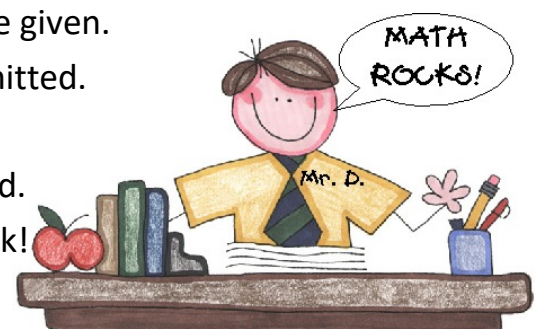


# HMC 2015 - SECOND ROUND

## BOOKLET - **A**

### INSTRUCTIONS

- Before you start, make sure that your details are filled in accurately.
- Do not open this booklet until told to do so.
- This examination paper consists of 30 multiple choice questions. Each question is followed by answers marked A, B, C, D and E. Only one of them is correct.
- The final answers must be entered in the correct box on the ANSWER SHEET which is supplied separately.
- Each correct answer is worth:
  - 4 marks in Part 1 (Questions from 1 to 15)
  - 6 marks in Part 2 (Questions from 16 to 30)
- There is a penalty, -1 mark, for every incorrect answer.
- Exam duration is 75 minutes and no extra time will be given.
- Calculators and geometric instruments are NOT permitted.
- Diagrams are NOT necessarily drawn to scale.
- Rough paper, pen, pencil, and an eraser are permitted.
- Start when the invigilator tells you to do so. Good luck!





## PART – I

1. Solve the following  $2\frac{3}{5} - 1\frac{1}{2}$

A)  $\frac{11}{10}$

B)  $\frac{3}{10}$

C)  $\frac{1}{2}$

D)  $\frac{4}{7}$

E)  $\frac{1}{10}$

2. Which of the following has the most number of factors?

A) 20

B) 24

C) 28

D) 45

E) 50



3. Which number is 44 more than half of 222?

A) 100

B) 122

C) 133

D) 144

E) 155

4. The sum of three consecutive numbers is 231. Which of the following the smallest one ?

A) 37

B) 71

C) 75

D) 76

E) 77

5. Musa was 5 years old when his brother was born. What is the age of his brother if Musa is 25 years old now?

A) 20

B) 21

C) 15

D) 23

E) 30



6.  $20 \div 4 - 2 + 2 \times 3 = ?$

A) 9

B) 11

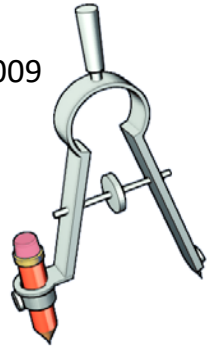
C) 5

D) 15

E) 36

7.  $2.121 - 1.212 = ?$

- A) 1.909                      B) 0.909                      C) 1.919                      D) 0.999                      E) 1.009

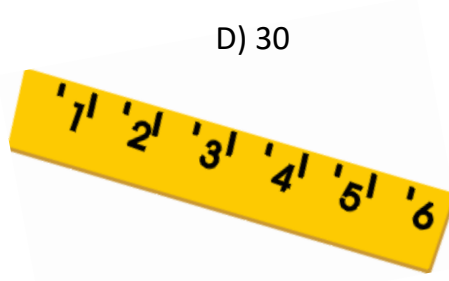


8.  $5^2 - 4^2 - 3^2 + 2^2 = ?$

- A) 0                                  B) 2                                  C) 4                                  D) 6                                  E) 8

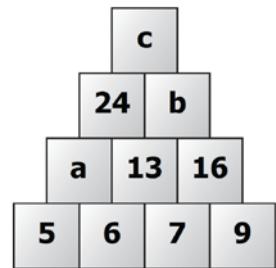
9. 30% of 300 equals

- A) 100                              B) 90                              C) 9                              D) 30                              E) 99



10. There is a pattern between given numbers in the figure.

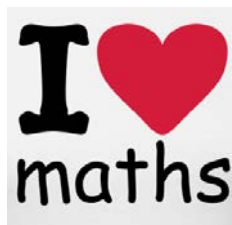
According to the pattern, which of the following is equal to c?



- A) 11                              B) 29                              C) 53                              D) 63                              E) 43

11. Three times a number is 36. Twice the number is

- A) 12                              B) 18                              C) 24                              D) 28                              E) 30



12. Which of the following fractions is more than 2?

A)  $\frac{5}{3}$

B)  $\frac{11}{6}$

C)  $\frac{22}{12}$

D)  $\frac{19}{9}$

E)  $\frac{15}{8}$



13. The next number in the sequence; 99, 90, 83, 78, 75,... is

A) 70

B) 71

C) 72

D) 73

E) 74

14. Jabulani has 3 banknotes of R100, 5 banknotes of R50, and 7 coins of R5. How much money does he have in total?

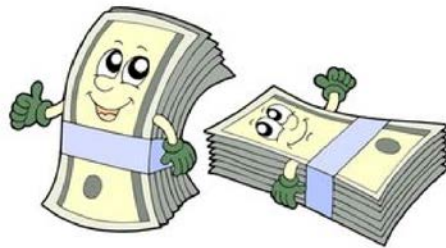
A) R525

B) R585

C) R535

D) R575

E) R595



15. In a house there are five rooms and in each there are three cats. How many cat's paws are there in the house if none of the cats have a physical defect?

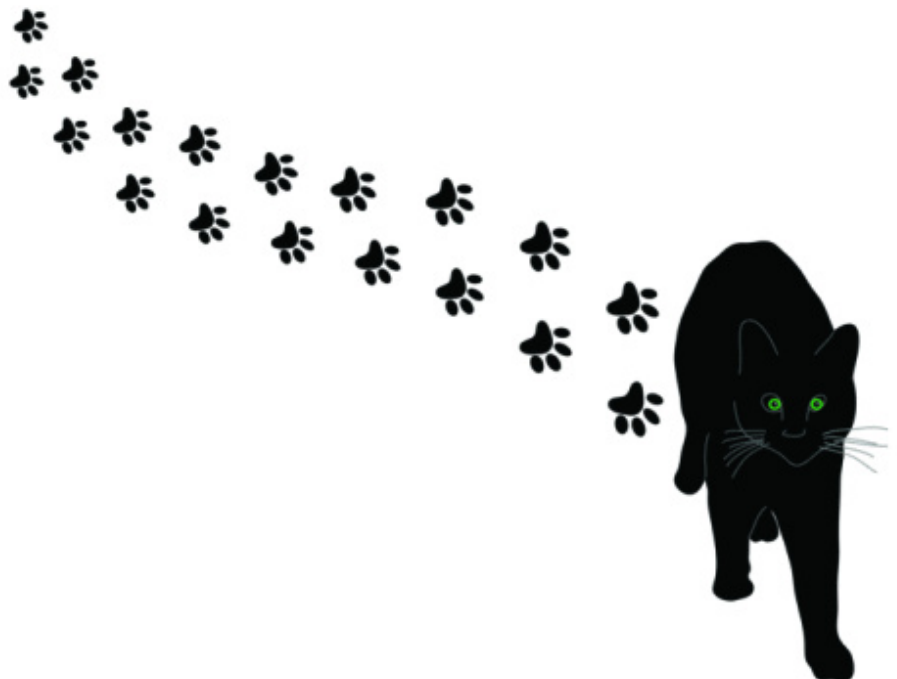
A)15

B)30

C)34

D)54

E)60



## PART – II

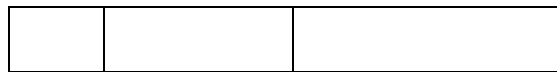
16. What will be the time 2015 minutes after 20:15?

- A) 05:50      B) 15:30      C) 17:50      D) 13:50      E) 05:30

17. If  $A + 8 = 29$  and  $A + B = 35$  then evaluate  $A - B = ?$

- A) 3      B) 4      C) 5      D) 7      E) 9

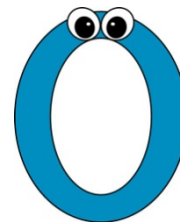
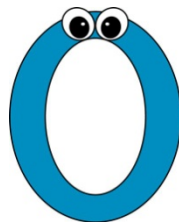
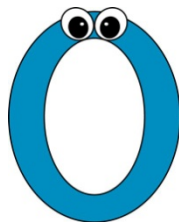
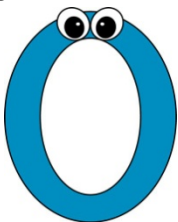
18. How many rectangles, in different sizes, altogether can be determined in the shape given below?



- A) 3      B) 4      C) 5      D) 6      E) 7

19. How many zeros are there at the end of the product of  $1 \times 2 \times 3 \times 4 \times \dots \times 99 \times 100$ ?

- A) 10      B) 11      C) 20      D) 24      E) 25



20. The 2015<sup>th</sup> letter of MATHSSHTAMMATHSSHTAM.... is

- A) M      B) A      C) T      D) H      E) S

Math  
+ Me  

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FUN

21. Two cars with the speeds 60km/h and 75km/h are travelling in opposite directions from the same starting point. In how many hours will the distance between these two cars be 540km?

- A) 3                      B) 2                      C) 5                      D) 6                      E) 4



22. There are 23 trees along a straight road. If the distance between two successive trees is 7 metres, what is the distance between the first and the last tree?

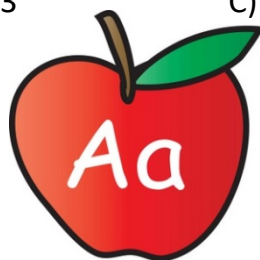
- A) 30                      B) 147                      C) 154                      D) 161                      E) 168

23.  $\Delta$  is an operation defined as  $a\Delta b = a + 3 \times b - a^2$ . Determine the value of  $1\Delta 2$ .

- A) 7                      B) 6                      C) 5                      D) 4                      E) 3

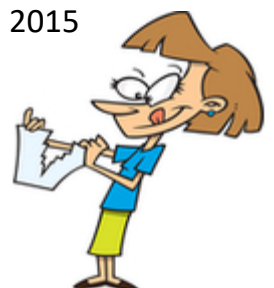
24. If the last digit of the product  $a \times 3 \times 7 \times 9 \times 11$  is 3, then which of the following can be  $a$ ?

- A) 11                      B) 13                      C) 15                      D) 17                      E) 19



25. A paper is divided into 5 pieces. One of these 5 pieces is again divided into 5. This operation is continued. Which of the following cannot be the number of paper pieces which might be obtained in this way?

- A) 1453                      B) 1565                      C) 1897                      D) 2025                      E) 2015



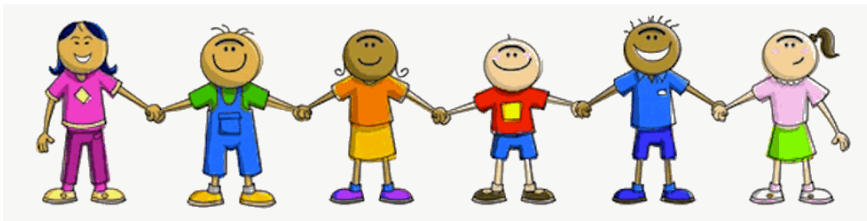


26. At a meeting there are 28 handshakes altogether. If each person shakes his/her hand with every other person just once, how many people were there in total?

- A) 8                      B) 7                      C) 15                      D) 10                      E) 9

27. Tando is older than Sibahle. Sibahle is older than Luthando. Luthando is younger than Clare while Clare is older than Tando. List the people from oldest to youngest.

- A) L, S, T, C              B) T, C, S, L              C) L, C, S, T              D) C, T, S, L              E) T, S, C, L

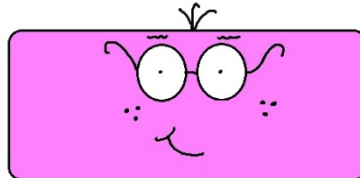


28. Two candles with same height burn 4 hrs and 6 hrs respectively. If they start burning at the same time, after how many minutes will one be twice as high as the other?

- A) 60                      B) 150                      C) 120                      D) 100                      E) 180

29. The perimeter of a rectangle is 40cm. Which one cannot be the length of one of its sides?

- A) 1cm                      B) 4cm                      C) 20cm                      D) 10cm                      E) 9cm



30. If 200 grams of breakfast cereal contain 24 grams of fat, how much fat is in 350 grams of cereal?

- A) 42                      B) 48                      C) 36                      D) 40                      E) 44

**THE END**

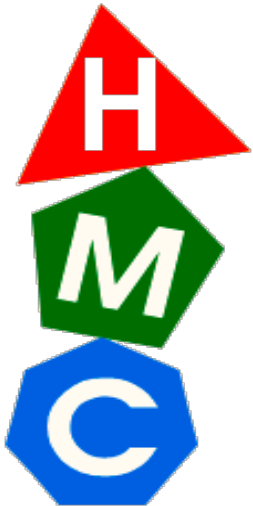


## NATIONAL HMC PARTICIPANTS

2004	800 Entrants	2010	16800 Entrants
2006	4500 Entrants	2011	17300 Entrants
2007	6000 Entrants	2012	18500 Entrants
2008	9500 Entrants	2013	23278 Entrants
2009	13250 Entrants	2014	23650 Entrants

6000 Learners participated in HMC 2014 from JOHANNESBURG  
207 Learners invited to as TOP LEARNERS to the PRIZE GIVING ceremony  
97 Females; 110 Males; 144 in Grade 7; 59 in Grade 6; 4 in Grade 5

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