Part A

1. $\dfrac{1}{10} + \dfrac{7}{100} + \dfrac{3}{1000}$ equals

   (A) 0.011   (B) 0.0173   (C) 0.110   (D) 0.173   (E) 0.21

2. Which of the following expressions does not equal 100?

   (A) 34 + 46 + 55/(5 + 6) + 9   (B) 4 x (34 - 3 x 3)   (C) .4 x 250
   (D) (16 – 6) x 10   (E) All of them equal 100

3. The value closest to one million is:

   (A) 2^{10} (B) 2^{20} (C) 2^{30} (D) 2^{40} (E) 2^{50}

4. A sequence of numbers is constructed by adding the previous two numbers of the sequence together. If the first two numbers are 1 and 3, the eighth number in the sequence is

   (A) 29   (B) 30   (C) 46   (D) 47   (E) 76

5. On the first day, Nabil put $1 in a big box. Then, each succeeding day, he added to the box exactly twice as many dollars as he did on the previous day. On which day will Nabil have more than $1000 in his box for the first time?

   (A) 8th day   (B) 9th day   (C) 10th day   (D) 11th day   (E) 1000th day

6. Starting at 9 and counting by 8's, Samuel counts 9, 17, 25, …. A number that will be counted is

   (A) 85   (B) 86   (C) 87   (D) 88   (E) 89

7. Roman and Paul are driving on the same highway and both drive at a constant speed. Roman drives at 90 km/h and is 30 km ahead of Paul. If Paul drives at 100 km/h, how long will it take for Paul to catch Roman?

   (A) 18 minutes   (B) 1 hour   (C) 2 hours   (D) 3 hours   (E) 4 hours

8. The value of $\dfrac{3}{1+\dfrac{1}{2}} - \dfrac{2}{1+\dfrac{1}{3}}$ is?

(A) $-\dfrac{1}{6}$ (B) 0   (C) $\dfrac{5}{12}$ (D) $\dfrac{1}{2}$ (E) $\dfrac{7}{2}$

9. Julie sells 3 ducks and 4 chickens for $70.30. One chicken and one duck together are sold for $20.70. What is the price of a chicken?

(A) $6.30   (B) $8.20   (C) $12.50   (D) $14.10   (E) None of these

10. Two men chop one ton of wood in two hours. How long will it take three men to chop three tons of wood?

(A) 2 hours   (B) $\dfrac{5}{2}$ hours   (C) 3 hours   (D) $\dfrac{10}{3}$ hours   (E) None of these

Part B

11. An automobile dealer sells 2 models of cars, A and B. Model A can be purchased in 7 different colours and 4 different engine sizes. Model B comes in 8 colours and 3 engine sizes. How many cars must the dealer order to have one car of each model in each colour and engine size?

    (A) 22   (B) 42   (C) 52   (D) 105   (E) 672

12. What is the value of $(5(4+3))^2$?

    (A) 144   (B) 245   (C) 1225   (D) 5432   (E) None of these

13. You begin a new job in which you make children's toys. Because you improve as you learn how to do your work, each day you can make 2 more toys than the previous day. If you started work on Monday and you made 45 toys during the 5-day work week, how many toys did you make on Thursday?

    (A) 5   (B) 6   (C) 7   (D) 9   (E) 11

14. Twice the product of two numbers is 108 while one third of their sum is 5. What is the value of the smaller of these numbers?

   (A) 5   (B) 6   (C) 7   (D) 8   (E) 9

15. Half of the students in a class are girls. If the number of boys was three times as large and the number of girls twice as large, what would the percentage of boys in the class become?

    (A) 50%   (B) 60%   (C) 75%   (D) 80%   (E) Not enough information

16. The cost of visiting a zoo is $5 for an adult and $3 for a child. By the end of the day, 630 persons had visited the zoo and the revenue for the day was $2368. How many children visited the zoo on that day?

    (A) 239   (B) 240   (C) 300   (D) 390   (E) 391

17. In the following 4x4 diagram, each row, each column and each diagonal contains each of the numbers 1, 2, 3 and 4. What is the value of a + b?

1	a	b	
	2		
		3	
		1	
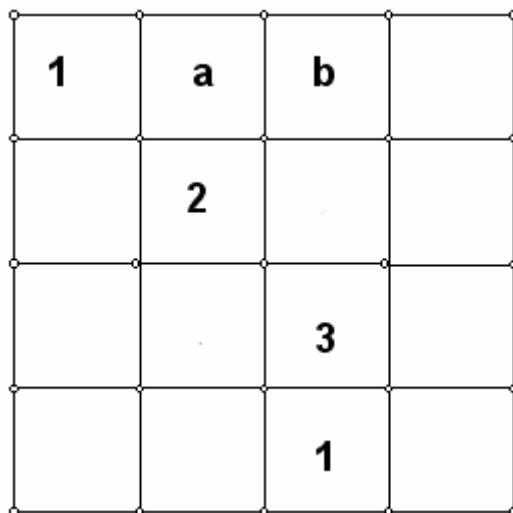
(A) 3   (B) 4   (C) 5   (D) 6   (E) 7

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18. How many 3's are used when writing all of the integers from 1 to 100?

(A) 10   (B) 19   (C) 20   (D) 21   (E) None of these

19. How much 1% fat milk should we mix with 15% fat cream to obtain 5 litres of 3% fat mixture?

(A) $\dfrac{5}{7}$ l.   (B) 1 l.   (C) 3 l.   (D) 4 l.   (E) $\dfrac{30}{7}$ l.

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20. A reservoir has 3 sources of water. Source A can fill the reservoir in 2 days, source B in 3 days and source C in 6 days. How long would it take to fill the reservoir using all 3 sources?

(A) $\dfrac{1}{2}$ day   (B) 1 day   (C) 2 days   (D) $\dfrac{5}{2}$ days   (E) None of these

Part C

21. How many triangles can be found in the figure shown below?
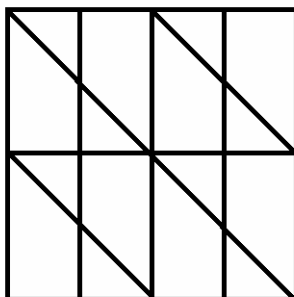
   (A) 12   (B) 14   (C) 16   (D) 18   (E) 20

22. A cube composed of 64 1 x 1 x 1 cubes is painted and then broken apart again into the smaller cubes. How many of the 1 x 1 x 1 cubes will have exactly 2 painted faces?

   (A) 8   (B) 16   (C) 24   (D) 36   (E) 48

23. The positive integers, starting with 1, are written in order 123456789101112.... The digit appearing in the 100th place is

   (A) 0   (B) 4   (C) 5   (D) 6   (E) 7

24. What is the last digit of the number 7^{2006}?

   (A) 1   (B) 3   (C) 5   (D) 7   (E) 9

25. The digits 1, 2, 3, 4 and 5 can be arranged to form 120 different numbers. How many of these numbers will have the digits 1 and 2 in increasing order? For example, 14352 and 51234 are two such numbers.

   (A) 6   (B) 12   (C) 24   (D) 60   (E) None of these

26. The length, L, of a rectangle is increased by 50% and the width, W, is doubled to form a larger rectangle with an area of 30 cm^2. What is the largest possible perimeter of the larger rectangle if L and W are integers with $L > W$?

   (A) 22 cm   (B) 23 cm   (C) 26 cm   (D) 34 cm   (E) 43 cm