UNIVERSITY OF NEW BRUNSWICK
and
UNIVERSITÉ DE MONCTON

JUNIOR HIGH SCHOOL MATHEMATICS COMPETITION

May 25, 1990

GRADE 7

PART A

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1. During the school fair, the student council sold lemonade at 25 cents for each 260 ml. glass. Altogether they sold 420 glasses. The lemonade was purchased at a cost of 60 cents per liter. How much profit did the student council make?

   (A) \$33.18   (B) \$39.48   (C) \$65.52   (D) \$105   (E) none of the previous answers

2. The six students on a team shake hands with one another before a game. How many handshakes are there in all?

   (A) 10   (B) 15   (C) 16   (D) 20   (E) 36

3. What is the next number in the list

$$\frac{1}{6}, \ \frac{1}{3}, \ \frac{1}{2}, \ \frac{2}{3}, \ \frac{5}{6}, \ 1, \ \ldots?$$

   (A) $\frac{7}{6}$ (B) $\frac{4}{3}$ (C) $\frac{5}{3}$ (D) $1\frac{5}{6}$ (E) none of the previous answers

4. A palindromic number reads the same back to front as front to back - like 3443. How many 3 digit palindromic numbers are there?

   (A) 90   (B) 10   (C) 9   (D) 81   (E) 100

5. The reciprocal of $\frac{1}{3} - \frac{1}{5}$ is

   (A) $\frac{2}{15}$ (B) -2 (C) 2   (D) $\frac{15}{2}$ (E) $\frac{0}{15}$

6. In 1988, Betty's birthday was on a cold Wednesday in January. In 1993, on what day will her birthday occur?

(A) Sunday   (B) Monday   (C) Tuesday   (D) Wednesday

(E) not enough information given

7. A prime is a whole number (larger than 1) whose only factors are 1 and itself. How many primes less than 100 have 3 as a digit?

(A) 14   (B) 10   (C) 11   (D) 2   (E) 9

8. The tens digit in $\sqrt{8200}$ is

(A) 3   (B) 5   (C) 7   (D) 9   (E) 0

9. $41\frac{2}{3}\%$ equals

(A) $\frac{5}{12}$ (B) $\frac{3}{8}$ (C) $\frac{2}{5}$ (D) $\frac{3}{7}$ (E) $\frac{7}{12}$

10. If one-third of a number is 18, then four times that number must be

(A) 72   (B) 4.5   (C) 180   (D) 216   (E) 24

PART B

11. It takes a child 90 seconds to climb the 60m. length of an escalator which is not working. When in operation, the escalator lifts a passenger from bottom to top in 60 seconds. How long does it take the child to cover the 60 meters, if she walks on the moving escalator?

    (A) 30 sec.   (B) 36 sec.   (C) 40 sec.   (D) 45 sec.   (E) 50 sec.

12. In a televised quiz show, one wins 250 points for a correct answer, but looses 150 points for an incorrect answer. One contestant replied to 15 questions and obtained 2150 points. How many correct answers did she give?

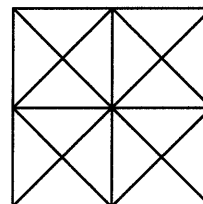   (A) 4   (B) 9   (C) 11   (D) 15   (E) none of the previous answers

13. Isabelle has in her hand some pennies, nickels and dimes totalling 80 cents. If she has 15 coins and as many pennies as nickels, how many dimes does she have?

    (A) 1   (B) 2   (C) 3   (D) 4   (E) 5

14. It costs $3 for a car and $10 for a bus to park in a parking lot. There are 102 vehicles in the lot and altogether they paid $418 to park. How many cars are there in the lot?

    (A) 16   (B) 25   (C) 84   (D) 86   (E) none of these previous answers

15. How many triangles are there in the following figure?

    (A) 20   (B) 32   (C) 36   (D) 40   (E) 44

16. One needs 4221 digits to number the pages of a book. How many pages does this book contain?

    (A) 1108   (B) 1246   (C) 1332   (D) 1533   (E) none of the previous answers

17. A snail climbs all the way up a pole 12m. high. It climbs 3m. each day but slides down 2m. each night. How long will it take the snail to reach the top of the pole?

    (A) 10 days and 9 nights   (B) 10 days and 10 nights   (C) 11 days and 11 nights
    (D) 12 days and 11 nights   (E) 12 days and 12 nights

18. A basketball team has won 30 games of 40 played. How many of the remaining 30 games must it win to have a 80% win record for the season?

(A) 30   (B) 15   (C) 25   (D) 26   (E) 10

19. Several pennies lie flat on a table. How many can be made to touch one particular penny?

(A) 4   (B) 5   (C) 6   (D) 7   (E) 8

20. John spent 40% of his allowance on candy, then gave 30% of the remainder to his sister. How much of his allowance does he have left?

(A) 30%   (B) 18%   (C) 35%   (D) 50%   (E) 42%

PART C

21. Mary buys 100 candies for $7.00. If Yips cost 5 cents each, Gups 6 cents each and Pips 7 cents each, how many more Pips than Yips did Mary buy?

    (A) 50   (B) 60   (C) 70   (D) 100   (E) not enough information given

22. The base of a rectangle exceeds its height by 4 cm., and its perimeter is 40 cm. What is its area?

    (A) 90   (B) 92   (C) 94   (D) 96   (E) 98

23. In a woodlot a forest engineer has found that 3000 trees are ready for cutting. In this woodlot 40% of the trees are conifers, and 60% are "leafy" trees. Also 62% of the leafy trees are maples, while 25% of the conifers are pines. Altogether, how many maples and pines can be cut?

    (A) 1326   (B) 1416   (C) 1500   (D) 2610   (E) none of the previous answers

24. The edge of a sugar cube is about 1 cm. Roughly how many sugar cubes could you put in a dry, empty swimming pool which measures 25m. by 10m. by 5m.?

    (A) 125,000   (B) 500,000   (C) 50,000,000   (D) 1,250,000,000   (E) 50,000,000,000

25. George washes a car in 30 minutes and Marie washes the same car in 45 min. How many minutes will it take both working together to wash the car?

    (A) 25   (B) 20   (C) 37.5   (D) 15   (E) 18

26. You are told that 54289 is a perfect square. The next perfect square is

    (A) 55225   (B) 56169   (C) 54756   (D) 54999   (E) 55000