Math Review Exam (1-6)

1. If 'n' is a positive integer then n(n+1)(n+2) is:
   a. divisible by 4 whenever n is even.   b. even only when n is even.
   c. even only when n is odd.   d. divisible by 3 only when n is odd.
   e. divisible by 4 only when n is even

2. How many positive integers less than 20 are equal to the sum of a positive multiple of 3 and a positive multiple of 4?
   a. Eleven   b. Ten   c. Twelve   d. Nine   e. None of these

3. What is the product of the four smallest prime numbers?
   a. 945
   b. 1155
   c. 210
   d. 30
   e. None of these

4. Today is Afsana's 12th birthday and her father's 36th birthday. In how many years will Afsana's father be twice as old as Afsana at that time?
   a. 6   b. 4   c. 10   d. 12   e. None of these

5. What is the sum of the prime numbers that are greater than 50 but less than 60?
   a. 110   b. 51   c. 179   d. 112   e. None of these

6. 50 students took an exam. There were 4 A's, 9 B's, 15 C's, 8 D's, and the rest of the students failed. What percent of the students failed?
   a. 28%   b. 27%   c. 42%   d. 14%   e. None of these

7. What percentage of a solution is blood if it contains 1.4ml blood and 8417ml water? Round to the nearest thousandth?
   a. 0.016   b. 0.144   c. 0.017   d. 1.673   e. 2.384

8. What is the percentage increase of an account that began with a balance of $250000 and increased to $250005?
   a. 0.0145%   b. 0.00145%   c. 0.00002%   d. 0.002%   e. 1.011%

9. The greatest common factor of two positive integers is A. The least common multiple of the two integers is B. If one number is C, what is the other number?
   a. $B + \dfrac{A}{C}$ b. $A \times \dfrac{B}{C}$ c. $A + \dfrac{B}{C}$ d. $C \times \dfrac{A}{B}$ e. None of these

10. Two years ago, the cost of pen A was Tk. 70 more than that of pen B. Now, the cost of pen A has increased by 100% and that of pen B has increased by Tk. 20. Today you need a total of Tk. 250 to buy one pen of each type. What is the price of pen B?
    a. 50   b. 42   c. 36   d. 32   e. 30

11. Zihad can now purchase 5 more apples with Tk. 75 because of reduction in price by 20%. Calculate the current price of one dozen of apples.
    a. 36   b. 24   c. 32   d. 18   e. 45

12. If *a* and *b* are even integers, what must be odd?
    a. a × b   b. a - b   c. a + b -1   d. a + b   e. None of these

13. How Much less is 1/16 than 0.0665?
    a. 2/250   b. 1/250   c. 2/25   d. 1/35   e. None of these

14. Due to a decrease in labor force, the production of a factory decreased by $14\frac{2}{7}$%. In order to reach original production, how much labor force (in percent) should be increased?
    a. $\frac{17}{12}$ b. $12\frac{1}{2}$ c. $37\frac{1}{2}$ d. $16\frac{2}{3}$ e. None of these

15. A 30% solution of salt is mixed with 10 grams of water to form a 40% solution. How many grams of the original solution did we start with?
    a. 40   b. 20   c. 12   d. 10   e. Cannot be determined

16. If $1+\frac{1}{x}=\frac{x+1}{x}$, what is the value of x?
    a. 1 only   b. 1 or –1 only   c. No value   d. Any value   e. None of these

17. While selling a dangerous artifact, Zihad was asking for such a price that will enable her to offer a 10% discount and still make a profit of 20% on cost. If the cost of the artifact was Tk. 30, what was his asking price?
    a. 36   b. 41.25   c. 33.5   d. 40   e. None of these

18. An account accrues simple interest on an initial balance of $350 dollars at a rate of 4.5% per year. After 10 years, how much interest has deposited to the account?
    a. 147.74   b. 160.82   c. 157.50   d. 160.37   e. None of these

19. Sarah usually makes a profit of 40% on items she sells. If she reduces the price by 10%, her sales increase by 40%. What is the ratio of the new total profit to the old total profit?
    a. 1.125   b. 0.91   c. 1.08   d. 1.10   e. 0.95

20. In redesigning a warehouse, the length is increased by 20%, the breadth is increased by 40% and the height is decreased by 25%. What is the net increase (in percent) in the volume of the redesigned warehouse compared to the previous one?
    a. 26   b. 40   c. 15   d. 25   e. 20

21. Mahirul is twice as old as Rakib, and Ashir is 6 years younger than Rakib. Four years ago, Mahirul was 4 times as old as Ashir. What will be the total age of the three after 5 years?
    a. 81   b. 76   c. 71   d. 66   e. None of these

22. Ben and Sam are starting a furniture design business. In order to build their shop, they borrow $150,000 from their neighborhood bank. The interest rate on the loan is 6%. How much interest do they have to pay in year 1?
    a. 9000   b. 6000   c. 3000   d. 1500   e. None of these

A work is completed by some people in a certain number of days. If the number of people increased by two-fifths of the original number actually working, number of days will decrease by what fraction?

a. $\dfrac{2}{3}$　　　　b. $\dfrac{3}{4}$　　　　c. $\dfrac{2}{7}$　　　　d. $\dfrac{3}{5}$　　　　e. None of these

23. The average weight of Zishan, Saadman and Onish is 95kg. If Rawnak joins them the average becomes 90kg. If Shakib, whose weight is 5kg less than Rawnak, replaces Zishan from the group, the average becomes 75kg. The weight of Zishan is:
   a. 110　　　　b. 125　　　　c. 130　　　　d. 145　　　　e. None of these

24. Ripon buys 5 dozen eggs at 10 paisa per egg. He then sells each dozen for 2 Tk. What is her profit margin?
   a. 40%　　　　b. 100%　　　　c. 25%　　　　d. 66.67%　　　　e. None of these

25. A chair company produces 5,000 luxury chairs per year. Each chair requires Tk 200 in wood and other materials to build. It also requires 3 hours of work by a craftsman, who earns Tk 30 per hour. If the company wants to earn Tk 3 million dollars in profit this year, how much should each chair cost?
   a. 890　　　　b. 800　　　　c. 750　　　　d. 900　　　　e. None of these

26. Rafsan spends 75% of his income. His income increased by 20% and he increased his expenditure by 10%. His savings increased by?
   a. 10%　　　　b. 25%　　　　c. 37.5%　　　　d. 50%　　　　e. None of these

27. Ella loaned Frances $10,000 to start a business. They agreed that the loan would be paid back in five years, with a simple interest rate of 9%. When the loan is paid back in full, what will be the total amount that Ella collects?
   a. 15750　　　　b. 17500　　　　c. 14500　　　　d. 12000　　　　e. None of these

28. A business launches a new product that produces BDT x in sales its first year. Sales in the second year are double the first, and the third year has sales four times as large as the first year. If 2nd year sales were BDT 12 million, how much in total sales was produced over the 3-year period?
   a. 42 million　　　b. 48 million　　　c. 36 million　　　d. 38 million　　　e. None of these

29. Pablu, Boltu, and Niloy were each given a candy bar. Pablu ate 7/12 of his and Niloy ate 20% of his. If Boltu ate more than Niloy and less than Pablu, what amount could Boltu have eaten?
   a. 9/15　　　　b. 2/7　　　　c. 3/5　　　　d. 8/9　　　　e. None of these

30. A number when divided by a divisor leaves a remainder of 24. When twice the original number is divided by the same divisor, the remainder is 11. What is the value of the divisor?
   a. 37　　　　b. 59　　　　c. 35　　　　d. 13　　　　e. Cannot be determined

31. Unfortunately for Tasmiah, there has been an increase of $16\dfrac{2}{3}\%$ in the price of cigarettes due to which she can buy 3 less cigarettes with Tk. 126. At what price did Tasmiah used to buy a packet containing 20 cigarettes?
   a. 100　　　　b. 120　　　　c. 140　　　　d. 160　　　　e. None of these

32. What is the probability of getting a head on the 7th toss of a coin?

    a. 1   b.1/128   c. 1/7   d. 1/2   e. None of these

33. At a certain factory $\frac{5}{8}$ of the workers are married and $\frac{3}{4}$ are at least 40 years old. If $\frac{1}{4}$ of the married workers are younger than 40, what fraction of the workers is at least 40 and not married?

    a. $\frac{5}{16}$ b. $\frac{5}{32}$ c. $\frac{9}{16}$ d. $\frac{9}{32}$ e. None of these

34. Recently Afnan's hourly rate has been increased by 10%. Before this increase, Afnan's total weekly earning was 200 taka. If his weekly hours were to decrease by 10% from last week's total hours, what would be the change in Afnan's total weekly earning?

    a. An increase of Tk. 1.5

    b. An increase of Tk. 2

    c. No change

    d. Cannot be determined

    e. None of these

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