

# Bank Written Math Preparation

## Lec. 01

Number Theory,  
Progression,  
Forming Equation

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FOR ADMISSION:  
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1. The difference between two number is five and the difference of their squares is 65. What is the larger number?  
(Bangladesh Bank: Officer – 2015)

Ans.: 9

2. The sum of 11 consecutive integers is 88. What is the largest of this number? (Combine 2 Bank : SO – 2018)

Ans.: 13

3. If the sum of five consecutive integers is S, what is the largest of those integers in terms of S?

(Bangladesh Bank: Officer – 2015)

Ans.:  $\frac{S}{5} + 2$

4. Of the three numbers, second is twice the first and is also thrice the third. If the average of the three numbers is 44, then what will be the larger number? (Bangladesh Bank: Officer – 2015)

Ans.: 72

5. The sum of three integers is 40. The largest integers is 3 times the middle integer, and the smallest integer is 23 less than the largest integer. What is the product of three integers?

Ans.:

6. If the difference between two numbers is 11 and one – fifth of the sum of the numbers is also 11, then what are the numbers? (Premier Bank – 2010)

Ans.: 22 and 33

7. The sum of the two numbers is 12 and their product is 35. What is the sum of the reciprocals of these numbers?

Ans.:  $\frac{1}{3}$

8. When a number is divided by 13, the remainder is 11. When the same number is divided by 17, then remainder is 9. What is the number?

Ans.: 349

9. R is list of 15 consecutive integers and T is a list of 21 consecutive integers. The median of the integers in list R is equal to the least integer in list T. If the two lists are combined into one list of 36 integers, how many different integers are on the combined list? (Dhaka Bank: TO – 2021)

Ans.: 28

10. দুই অংকবিশিষ্ট যেসকল সংখ্যা ৩ দ্বারা বিভাজ্য তাদের যোগফল নির্ণয় করুন।

(Bangladesh Bank: Officer - 2020)

Ans.: 1665

11. Prove that the sum of the odd numbers from 1 to 125 inclusive is equal to the sum of the odd numbers from 169 to 209 inclusive. (Agrani Bank: Officer (cash) – 2017)

12. A girl wants to buy a bag. She decides to save her pocket money to buy it. On the first day she saves Tk. 10, and on every subsequent day, she saves Tk. 10 more than the money she has saved on the previous day. When the girl be able to save Tk. 1200 for her bag?

Ans.: 15 days

13. The sum of three numbers in an Arithmetic Progression is 30. The sum of their squares is 318. Find the numbers. (BKB: Officer Cash – 2018)

Ans.: The three numbers x,y,z are respectively 7, 10, 13 OR 13, 10, 7.

14. Philips has own a contract to supply 1, 09, 200 units of a product to a customer. The customer wants final delivery within 12 weeks. The production planning department of Philips has estimated that production in the first week will 8000 units, but that by recruiting and training some extra staff, output will rise by 200 units each week. Will Philips be able to complete the contract within the time expected by the customer? (RAKUB – 2006)

Ans.: Yes

15. A series has three numbers  $a$ ,  $ar$  and  $ar^2$ . In the series, the first term is twice the second term. What is the ratio of the sum of the first two terms to the last two terms in the series? (Bangladesh Bank – 2012; UCB – 2013)  
Ans.: 2:1
16. The sum of three times the smaller and four times the larger number is 71 and twice the larger of two numbers is three more than five times the smaller. What are the numbers? (Rupali Bank: SO – 2020)  
Ans.: 14 and 5
17. An old man distributed all the gold coins he had to his two sons into two different numbers such that the difference between the squares of the two numbers is 36 times the difference between the two numbers. How many coins did the old man have? (GTCL Asst. Manager – 2016; Shahjalal Islami Bank: TO – 2013)  
Ans.: 36
18. In an increasing sequence of 10 consecutive integers, the sum of the first 5 integers is 560. What is the sum of the last 5 integers in the sequence? (UCB – 2011)  
Ans.: 585
19. A, B, C, D, E are 5 consecutive numbers in increasing order, deleting one of them from the set decreased the sum of the remaining numbers by 20% of the sum of 5. Which one of the number is deleted from the set?  
(Bangladesh Bank: AD – 2014)  
Ans.: C
20. The difference between a two digit number and the number obtained by interchanging the digits is 36. What is the difference between the sum and the difference of the digits of the number if the ratio between the digits of the number is 1:2? (PKB: JEO – 2014)  
Ans.: 8
21. A number of three digits has 5 in the units place and the middle digit is half the sum of the other two. If 108 is added to the number, the hundreds figure will take the place of the unit and the units the place of ten. Find the number.  
Ans.: 345
22. In a two-digit number, the digit in the unit place is more than twice the digit in tenth place by 1. If the digits in the unit place and the tenth place are interchanged, difference between the newly formed number and the original number is less than the original number by 1. What is the original number? (Janata Bank: AEO – 2015)  
Ans.: 37
23. If 5 is added to the sum of two digits of a number consisting of two digits, the sum will be three times the digits of the tenth place. Moreover, if the place of the digits are interchanged, the number thus found will be 9 less the original number. Find the number.  
(HBFCL : SO – 2015 ; Union Bank : SO – 2014 ; Rupali Bank : SO – 2013 ; Dhaka Bank : MTO – 2016)  
Ans.: 43
24. In a three-digit number, the digit in the units place is 75% of the digit in the ten's place. The digit in the ten's place is greater than the digit in the hundreds place by 1. If the sum of the digits in the ten's place and the hundreds place is 15, what is the number? (Uttara Bank: CO – 2018)  
Ans.: 786
25. In an examination, a student was asked to find  $\frac{3}{4}$  of a certain number. By mistaken he found  $\frac{3}{14}$  of it. His answer was 150 more than the correct answer. Find the number- (UCBL – 2010)  
Ans : -280
26. A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, what will be the respective remainders? (Janata Bank : EO – 2017)  
Ans : 2, 3
27. In the first 1000 natural numbers, how many integers exist such that they leave a remainder 4 when divided by 7, and a remainder 9 when divided by 11?  
Ans : 13

28. বর্গমূল নির্ণয় করুনঃ ৯২৪১৬ (BBBR - 1986)

Ans : 304

29. There are two examinations rooms A and B. If 10 students are sent from A to B, then the number of students in each room is the same. If 20 candidates are sent from B to A, then the number of students in A is double the number of students in B. What is the number of students in room A?

Ans : 100

30. In a regular week, there are 5 working days and for each day, the working hours are 8. A man gets Tk. 2.40 per hour for regular work and Tk. 3.20 per hours for overtime. If he earns Tk. 432 in 4 weeks, then how many hours does he work for?

Ans : 175

31. There are 200 questions in a 3-hour examination. Among these questions are 50 mathematics problems. It is suggest that twice as much time be allowed for each mathematics problem as for the other questions. How many minutes should be spent on the mathematics problems? (Janata Bank – 2011)

Ans : 72 minute

32. A girl purchased some flowers from a town for Tk. 72. In the next town, she found that the price per piece of flower is Tk. 3 less than that charged at the previous town and as such she could have purchased 2 more flowers. How many flowers did she buy from the first town? (BADC – 2011)

Ans : 6

33. বার্ষিক বনভোজন অনুষ্ঠান আয়োজনের জন্য নবোদয় সমিতির সদস্যরা ৪৫,০০০ টাকা বাজেট করলেন এবং সিদ্ধান্ত নিলেন যে, প্রত্যেক সদস্যই সমান চাঁদা দিবেন। কিন্তু ৫ জন সদস্য চাঁদা না দেয়ায় বাকি সদস্যদের মাথাপিছু ১৫ টাকা চাঁদা বৃদ্ধি পেলে। নবোদয় সমিতির সদস্য সংখ্যা কত? (Bangladesh Bank : CO - 2020)

Ans : 125

34. An amount of money was divided between some people in such a way that if there had been 4 more people, everyone would have got Tk. 16 less. But if there had been 4 less people everyone would have got Tk. 24 more. How many people were there in the group? (Basic Bank – 2002)

Ans : 20

35. Anik visited his cousin Rowhan during the summer vacation. In the mornings, they both would go for swimming. In the evenings, they would play tennis. They would engage in at most one activity per day, i.e. either they went swimming or played tennis each day. There were days when they took rest and stayed home all day long. There were 32 mornings when they did nothing, 18 evenings when they stayed at home, and a total of 28 days when they swam or played tennis. What duration of the summer vacation did Anik stay with Rowhan? (Uttara Bank – 2018)

Ans : 39

36. Karim and Rahim have equal amount of money. Radha has half of Rahim's money and Amena has half of Radha's money. If you add Tk. 1 with all the money they have, it will be Tk. 100. How much Rahim has?

(Bangladesh Bank : AD – 2004 ; Standard Bank : TAO – 2016 ; Premier Bank : TJO – 2018)

Ans : 36

37. Price of 3 tables and 5 chairs is Tk. 2000. Price of 5 tables and 7 chairs is Tk. 3200. What is the price of 1 table and 1 chair? (BKB – 2018 ; Rupali : CO - 2018)

Ans : 600

38. Mr. Hasan has few notes of Tk. 10 and Tk. 50. A total of his 150 notes amount to Tk. 5,100. What is the number of each kind of note? (Bangladesh Bank : 2011)

Ans : 60, 90

39. How many ways are there to divide 50 people into 3 groups so that each group contains members equal to a prime number? (Bangladesh Bank : Officer – 2018)

Ans : 5 ways

## Questions for Practice

40. One fifth of a number is equal to  $\frac{5}{8}$  of another number. If 35 is added to the first number, it becomes 4 times of the second number. The second number is-

Ans : 40

41. The sum of the squares of three numbers is 138, while the sum of their products taken two at a time is 131. Their sum is-

Ans : 20

42. If a number of two digits is  $x$  times the sum of its digits, then the number formed by interchanging the digits is the sum of the digits multiplied by :

Ans :  $11-x$

43. Of two numbers, 4 times the smaller one is less than 3 times the larger one by 5. If the sum of the numbers is larger than 6 times their difference by 6, find the two numbers-

Ans: 59 and 43

44. A man arranges to pay off a debt of Tk. 3600 by 40 annual installments which are in A.P. When 30 of the installments are paid he dies leaving on-third of the debt unpaid. Find the value of 8<sup>th</sup> installment.

Ans : 65

45. Shamim has double the amount of Tanim. Shamim has as many notes as the denomination of each note (In Taka). Their total amount is Tk. 600. How much does Tanim have? (RAKUB : SO – 2010)

Ans : 200

46. A manger has a budget of Tk. 60,000 for giving salary increment to 4 full-time and 2 part time employees. Each of the full-time employees receives the same increment, which is twice the increment that each of the part-time employees received. What is the amount of the increment that each of the full-time employee received?

(Combined 8 Bank : SO – 2008 ; Shilpa Bank : Officer – 1999)

Ans : 12000

47. According the stock policy of a company, each employee in the technical division is given 15 shares of the company and each employee in the recruitment division is given 10 shares. Employees belong to both communities get 25 shares each. There are 20 employees in the company and each one belongs to at least one division. The cost of each share is Tk. 10. If the technical division 15 employees and the recruitment division have 10 employees, then what is the total cost of the shares given by the company? (Jamuna Bank : MTO – 2016)

Ans : 3250

48. In a two-digit number, if the number is divided by the products its digits, then the quotient is 2. If 27 is added with the number then the place of the digits are interchanged. What is the number?

Ans : 36

49. In a two-digit number, if it is known that its unit's digit exceeds its ten's digit by 2 and that the product of the given number and the sum of its digits is equal to 144, then the numbers is-

Ans : 24

50. When a number is successively divided by 7, 5 and 4, it leaves remainders of 4, 2 and 3 respectively. What will be the respective remainders when the smallest such number is successively divided by 8, 5 and 6.

Ans : 3, 0, 3

**- - - - Thank You - - - -**