# National Analytical Brains Competition 2025

# NAB Competition 2025 - Grade 05

## Mathematical Ability

All questions are mandatory. Please note there is no negative marking:

1. A number is considered “super divisible” if it leaves **no remainder** when divided by both 9 and 11. Which of the following numbers can be called “super divisible”?
   (a) 6930 (b) 6936 (c) 6939 (d) 6941

2. Two numbers have a **sum of 240**. The **largest number that divides both of them exactly** is **12**. Which of the following **cannot** be one of these numbers?
   (a) 72 (b) 84 (c) 108 (d) 132

3. Simplify: **96 ÷ 8 × (15 - 9) + 45 ÷ 9**
   (a) 78 (b) 81 (c) 77 (d) 75

4. The sum of **7 consecutive odd numbers** is such that their **average is 53**. What is the **largest number** among them?
   (a) 59 (b) 61 (c) 57 (d) 55

5. A secret code number must satisfy two conditions:
   It is a **5-digit number**.
   It is divisible by both **8 and 9**.
   What is the **smallest number that can be used as the code**?
   (a) 10008 (b) 10080 (c) 100080 (d) 10072

6. Two milk drums contain **252 litres** and **378 litres** of milk. A milkman wants to transfer milk from each drum into **equal-sized containers** without any leftover. What is the **largest capacity** (in litres) that each container can have?
   (a) 96 litres (b) 108 litres (c) 126 litres (d) 144 litres

7. Riya has a square garden with each side measuring **44 cm**. She decides to replace the boundary of the square with a circular path such that the **total length of the circular path is exactly equal to the perimeter of her square garden**. What will be the **diameter of the circular path**?
   (a) 28 cm (b) 14 cm (c) 56 cm (d) 59 cm

8. A secret code number is written as **476*2**, where * is a missing digit. The code will be considered **“perfect”** if the number is divisible by 9. Which digit should replace * to make the code perfect?

(a) 1 (b) 0 (c) 7 (d) 8

9. A magician has two secret numbers. He reveals that their **LCM is 180** and their **HCF is 12**. One of the numbers is **36**. Can you find the **other hidden number**?
(a) 48 (b) 60 (c) 72 (d) 90

10. A cube has a side of **5 cm**. It is cut into **125 smaller cubes of equal size**. What is the **length of the side of each smaller cube**?
(a) 1 cm (b) 2 cm (c) 1.5 cm (d) 0.5 cm

11. A treasure chest has numbers written on it. Only the numbers that are **prime** between **50 and 100** can open the chest. How many numbers will actually work?
(a) 10 (b) 12 (c) 15 (d) 11

12. A curious number leaves a **remainder of 5** when divided by **18, 24, and 32**. What is the **smallest such number**?
(a) 278 (b) 290 (c) 298 (d) 293

13. In a class, the boys and girls are like two teams standing in the ratio **5:7**. If the **total number of students lining up is 84**, how many students belong to the **"girls' team"**?
(a) 35 (b) 42 (c) 49 (d) 52

14. Avid reader Anika has a reading plan. She **finished 5 books** before the one she is reading now and plans to **read 6 more books** afterward. Counting the **current book**, how many books will she have read in total?
(a) 13 (b) 14 (c) 12 (d) 15

15. Look at this pattern: **5 + 55 + 555**. It can be written as a **single multiplication** with 5 as one factor. What is the other factor?
(a) 123 (b) 112 (c) 132 (d) 120

16. If you list **all the factors of 10** and multiply them together, what number will you get?
(a) 17 (b) 100 (c) 50 (d) 10

17. A mystery number is first **added to 3**, then the result is **multiplied by 5**, and finally **8 is subtracted** from this product. The final answer is **12**. What is the **mystery number**?
(a) 1 (b) 2 (c) 3 (d) 4

18. A baker has **10,000 candies**. He wants to pack them into **groups of 9** each. How many full groups of 9 can he make from all the candies?
(a) 1111 (b) 11110 (c) 11111 (d) None of these

19. Which of the following pairs is not co prime?
(a) (7, 15) (b) (14, 25) (c) (21, 22) (d) (35, 65)

20. A shopkeeper has **120 candies**. He gives **1/3 of them to his first customer**, then **adds 20 more candies** to the remaining candies, and finally **divides the new total equally among 4 children**. How many candies does **each child get**?
(a) 20 (b) 25 (c) 30 (d) 35

## Logical Reasoning:

All questions are mandatory. Please note there is no negative marking:

21. Which number should come next in the series?
**1, 9, 17, 33, 49, 73, ?**
(a) 98 (b) 97 (c) 100 (d) 99

22. Find the odd one out:
**27, 64, 125, 128, 216**
(a) 64 (b) 125 (c) 128 (d) 216

23. 23. In a certain code, CAT is written as SATC and DEAR is written as SEARD. How would SING be written in that code?
(a) BGINS (b) SGINS (c) SINGS (d) GNISS

24. Pointing to a man, Aarav said: “He is the son of my grandfather’s only son.” Who is the man?
(a) Brother (b) Uncle (c) Cousin (d) Father

25. A clock shows 3:15. What is the angle between hour and minute hand?
(a) 0° (b) 7.5° (c) 2.5° (d) 90°

26. Which word can’t be formed from “EXAMINATION”?
(a) NATION (b) EXIT (c) MAIN (d) AXIS

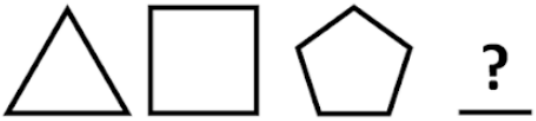
27. Arrange the following in dictionary order:
**CRUDE, CRUMB, CRUSH, CRUST**
(a) CRUDE, CRUMB, CRUSH, CRUST (b) CRUMB, CRUDE, CRUSH, CRUST
(c) CRUMB, CRUSH, CRUDE, CRUST (d) CRUDE, CRUSH, CRUMB, CRUST

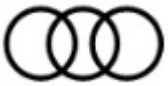
28. Complete the analogy:
**19 : 37 :: 26 : ?**
(a) 52 (b) 51 (c) 46 (d) 43

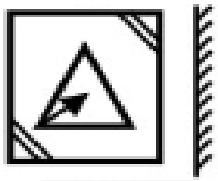
29. If 'TWO' is coded as 'VYQ', then 'NEW' will be coded as
(a) WEN (b) PGY (c) YPG (d) GPY (e) None of these

30. Raj travelled from a point X straight to Y at a distance of 80 metres. He turned right and walked 50 metres, then again turned right and walked 70 metres. Finally, he turned right and walked 50 metres. How far is he from the starting point?
(a) 10 m (b) 20 m (c) 50 m (d) 70 m

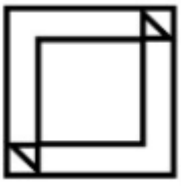
31. Find the missing term:
**4, 9, 19, 39, ?**
(a) 59 (b) 79 (c) 69 (d) 99

32. Which figure will come next?

(a) Decagon (b) Octagon (c) Heptagon (d) Hexagon

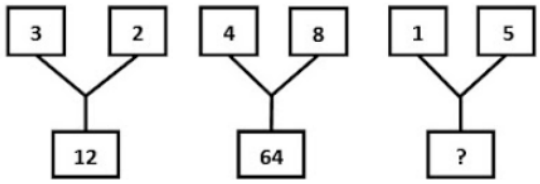
33. Identify the diagram that best represents the relationship among the classes given below:
Liquids, Milk, River Water?
(a)  (b)  (c)  (d) 

34. Given below are some simple pattern followed by four options of their mirror image.
Choose the exact mirror image of pattern from the option?

(a)  (b)  (c)  (d) 

35. In the following question, fig. (X) is exactly embedded in any one of the four option figures [a], [b], [c] and [d]. Find the option which contains fig.(X) as its part

**(X)**
(a)  (b)  (c)  (d) 

36. Find the number which will replace the '?' mark.




(a) 10 (b) 12 (c) 14 (d) 20

37. Choose the water image of the figure (x) from the four alternative given along with it?

Fig. (x)

(a)  (b)  (c)  (d) 

38. Ritivik thinks that **5 + 2 × 3 = 21**. What can you add to the calculation to make the left hand side equal 21?
(a) 0 (b) 10 (c) 8 (d) 7

39. Number of letters skipped in between the adjacent letters in the series is equal.
(a) HKNGSW (b) RVZDFG (c) RVZDHL (d) SUXADF

40. If 'rain' is 'water', 'water' is 'road', 'road' is 'cloud', 'cloud' is 'sky', 'sky' is 'sea' and 'sea' is 'path', where do aeroplanes fly?
(a) Road (b) Sea (c) Cloud (d) Water (e) None of these

## Daily Life Problems

All questions are mandatory. Please note there is no negative marking:

Mira runs a small bakery. Today, she baked 360 cupcakes, 288 muffins, and 432 cookies. She wants to pack them into gift boxes so that each box has the same number of items and nothing is left over. Later, she decides to sell special combo packs: each pack contains 4 cupcakes, 3 muffins, and 6 cookies. Mira also calculates the total cost of one combo pack if cupcakes cost ₹5 each, muffins ₹6 each, and cookies ₹4 each. She wants to arrange the baked items evenly on shelves, simplify ratios, and calculate cost fractions efficiently.

41. Mira wants to pack cupcakes, muffins, and cookies into **equal gift boxes with no leftovers**. What is the **largest number of boxes** she can make?
    (a) 48 (b) 24 (c) 36 (d) 72

42. If one combo pack contains **4 cupcakes**, how many combo packs can she make from **360 cupcakes**?
    (a) 92 (b) 95 (c) 88 (d) 90

43. How many combo packs can she make from **288 muffins** if each pack contains **3 muffins**?
    (a) 96 (b) 100 (c) 92 (d) 98

44. How many combo packs can she make from **432 cookies** if each pack contains **6 cookies**?
    (a) 70 (b) 72 (c) 74 (d) 76

45. What is the **total cost of cupcakes** in one combo pack?
    (a) ₹15 (b) ₹20 (c) ₹25 (d) ₹30

46. What is the **total cost of one combo pack** including cupcakes, muffins, and cookies?
    (a) ₹40 (b) ₹48 (c) ₹62 (d) ₹55

47. Mira wants to arrange all cupcakes, muffins, and cookies on shelves **dividing each type by the same number** with no leftover. What is the **largest number that divides 360, 288, 432 exactly**?
    (a) 48 (b) 60 (c) 36 (d) 72

48. If Mira wants **all 360 cupcakes packed into boxes of 12 cupcakes each**, how many boxes will she make?
    (a) 28 (b) 30 (c) 32 (d) 34

49. If Mira simplifies the ratio of cupcakes, muffins, and cookies in one combo pack , what is the **sum of the numbers in the simplified ratio**?
    (a) 12 (b) 13 (c) 14 (d) 15

50. If Mira calculates the **cost fraction of cupcakes to cookies** in one combo pack, what is the **simplified fraction**?
    (a) 5:6 (b) 10:12 (c) 1:1 (d) 2:3

**ANSWER KEY**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1.** | A | **2.** | A | **3.** | C | **4.** | A | **5.** | A |
| **6.** | C | **7.** | C | **8.** | D | **9.** | B | **10.** | A |
| **11.** | A | **12.** | D | **13.** | C | **14.** | B | **15.** | A |
| **16.** | B | **17.** | A | **18.** | A | **19.** | D | **20.** | B |
| **21.** | B | **22.** | C | **23.** | C | **24.** | A | **25.** | B |
| **26.** | D | **27.** | A | **28.** | B | **29.** | B | **30.** | A |
| **31.** | B | **32.** | D | **33.** | C | **34.** | C | **35.** | A |
| **36.** | A | **37.** | A | **38.** | B | **39.** | C | **40.** | B |
| **41.** | D | **42.** | D | **43.** | A | **44.** | B | **45.** | B |
| **46.** | C | **47.** | D | **48.** | B | **49.** | B | **50.** | A |