TNPSC Group II / IIA — Reasoning

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A. Quick Revision Notes

Number & alphabet series

In a number series, find the rule linking the terms — a common difference, a fixed ratio, squares, cubes, alternating patterns or primes — then supply the missing or wrong term. For an alphabet series, number the letters A = 1 to Z = 26 (and the reverse, where A pairs with Z) and look for a fixed step or a repeating group. Alphanumeric series mix letters, numbers and symbols. Method: test the differences between terms first, then ratios, then letter positions.

Coding-decoding

A word is disguised by a hidden rule you must uncover. Common rules: a fixed letter shift (for example +1 turns CAT into DBU), reverse coding, numbering letters by position, or symbol substitution. Compare each letter of the given word with its coded letter to spot the shift or mapping, confirm the rule with a second example if provided, then apply the same rule to encode or decode the term asked.

Analogy & classification

An analogy gives a related pair and asks for another with the same relationship (A is to B as C is to ?). First name the exact link — synonym, opposite, part-to-whole, cause-effect, worker-and-tool. Classification (odd-one-out) asks which item does not share the common property of the rest. Method: state the rule in words, then test every option against it and eliminate those that do not fit.

Blood relations

These describe family links and ask how two people are related. Draw a quick family tree with symbols (plus for male, minus for female, a double line for married, a vertical line for parent-child). Place each person as you read, then trace the required relation. In coded blood relations, decode expressions like 'A + B means A is the father of B' step by step. Watch generation levels and gender carefully.

Direction sense

Track movement on a compass: North up, South down, East right, West left; a right turn is clockwise, a left turn anticlockwise. Draw each leg of the journey, then find the straight-line distance from start to finish using Pythagoras: distance squared = horizontal distance squared + vertical distance squared. Note the final direction faced. Remember the sun rises in the East and sets in the West for shadow-based questions.

Syllogism

Two or more statements using 'all', 'some' or 'no' lead to a conclusion. Solve with Venn diagrams: draw a circle for each term and check whether the conclusion holds in every possible arrangement. 'All A are B' does not imply 'all B are A'; 'some A are B' does allow 'some B are A'; 'no A is B' is symmetric. A conclusion follows only if it is true in all cases, not just one.

Seating arrangement & puzzles

Arrange people or items from the clues — linear rows (facing the same or opposite way), circular tables (facing the centre or outward), or grids. List every fixed clue first, make a diagram, and fill the definite positions before the uncertain ones. Track left and right relative to the direction each person faces (it reverses for those facing you). Eliminate impossible layouts to reach the single valid arrangement.

Ranking & ordering

Find positions in a line or order from clues such as 'X is 5th from the left and 3rd from the right'. Total number = (position from left) + (position from right) minus 1. For taller/shorter or older/younger chains, place every element on one scale in order. Draw the arrangement and count from the correct end; misreading which end is asked is the commonest mistake.

Statement, assumption & conclusion

In statement-and-assumption, an assumption is something taken for granted that is necessary for the statement to make sense; accept it only if it is genuinely implied. In statement-and-conclusion, a conclusion must follow logically and directly from the information given, adding nothing extra. Judge strictly on what is stated, never on outside knowledge, opinion or what is merely likely.

Data sufficiency

You must decide whether the statements given are enough to answer the question, not actually solve it. Test each statement on its own first, then both together. Typical choices: statement I alone is sufficient, II alone is sufficient, either alone, both together are needed, or both together are still insufficient. Do the minimum work — determine sufficiency and stop; do not waste time computing the final value.

Clocks & calendars

Clocks: the minute hand moves 6 degrees per minute and the hour hand 0.5 degrees per minute, so the angle between them = the absolute value of (30 times hours minus 5.5 times minutes) degrees; the hands overlap 11 times in 12 hours. Calendars: an ordinary year has 1 odd day and a leap year 2; count odd days to find the weekday of a date. A year is a leap year if divisible by 4 (and, for century years, by 400).

Non-verbal reasoning

These use figures instead of words: series (find the next figure by tracking rotation, reflection, or the adding and removing of elements), figure analogy and classification, mirror and water images, paper folding and cutting, and embedded or hidden figures. Method: note exactly what changes from one figure to the next — position, number, shading or size — and apply the same change to identify the correct answer.

B. Practice MCQs (25)

1. In a family, A is the mother of B, and C is the brother of B. How is A related to C?

(A) Aunt
(B) Mother
(C) Sister
(D) Daughter

2. Which number does not belong to the series: 2, 4, 8, 16, 23, 64?

(A) 4
(B) 23
(C) 8
(D) 16

3. If 'X' is greater than 'Y', and 'Y' is greater than 'Z', then which of the following statements must be true?

(A) X > Z
(B) Y > X
(C) Z = X
(D) Y < Z

4. In a family, if P is the son of Q and Q is the father of R, what is the relationship between P and R?

(A) Uncle
(B) Cousin
(C) Brother
(D) Son

5. What is the missing number in the series: 5, 10, 20, __, 80?

(A) 30
(B) 40
(C) 50
(D) 60

6. Which of the following is an example of syllogism? A. All cats are animals. B. Some dogs are not pets. C. All birds can fly. D. No reptiles can fly.

(A) All cats are animals.
(B) Some dogs are not pets.
(C) All birds can fly.
(D) No reptiles can fly.

7. If 'cat' is coded as '3', 'dog' as '4', and 'fish' as '5', what is 'bird' coded as?

(A) 3
(B) 4
(C) 5
(D) 6

8. In a family, if A is the father of B, and B is the sister of C, then how is A related to C?

(A) Brother
(B) Father
(C) Uncle
(D) Grandfather

9. Which of the following directions is opposite to East?

(A) North
(B) South
(C) West
(D) Northeast

10. Consider the statements: All cats are mammals. All mammals are animals. Therefore, all cats are animals. Which type of reasoning is this?

(A) Inductive
(B) Deductive
(C) Abductive
(D) Analogous

11. Which of the following numbers is the odd one out: 11, 13, 17, 19, 20?

(A) 11
(B) 19
(C) 20
(D) 17

12. What is the next number in the series: 2, 4, 8, 16, ...?

(A) 32
(B) 24
(C) 18
(D) 22

13. If A is brother of B, and B is sister of C, then how is A related to C?

(A) Brother
(B) Sister
(C) Father
(D) Cousin

14. In a blood relation puzzle, if 'All A are B' and 'No B are C', then which of the following is true?

(A) All A are C
(B) Some B are A
(C) No A are C
(D) All B are A

15. What is the next number in the series: 3, 6, 12, 24, ...?

(A) 48
(B) 60
(C) 72
(D) 36

16. Identify the odd one out: 2, 3, 5, 7, 8, 11, 13.

(A) 2
(B) 8
(C) 3
(D) 11

17. If 'A' is greater than 'B', 'B' is greater than 'C', and 'C' is less than 'D', what is the relationship between 'A' and 'D'?

(A) A is greater than D
(B) A is less than D
(C) A is equal to D
(D) Impossible to determine

18. In a race, A finishes before B, and C finishes after B. If D finishes before A, who finishes last?

(A) A
(B) B
(C) C
(D) D

19. If A is the father of B and B is the father of C, then what is the relationship between A and C?

(A) Grandfather
(B) Father
(C) Brother
(D) Son

20. Which of the following words does not belong in the group: Apple, Banana, Carrot, Grape?

(A) Apple
(B) Banana
(C) Carrot
(D) Grape

21. Find the next term in the series: 2, 6, 12, 20, 30, ?

(A) 40
(B) 36
(C) 44
(D) 42

22. What comes next: 3, 6, 12, 24, ?

(A) 42
(B) 44
(C) 48
(D) 50

23. Find the missing number: 1, 4, 9, 16, 25, ?

(A) 30
(B) 35
(C) 49
(D) 36

24. Complete the letter series: A, C, E, G, ?

(A) H
(B) I
(C) J
(D) K

25. Find the next term: 5, 11, 23, 47, ?

(A) 93
(B) 94
(C) 95
(D) 96

C. Answer Key & Explanations

1. (B) A is B's mother, therefore A is also C's mother.
2. (B) All numbers except 23 are powers of 2. 2^1, 2^2, 2^3, 2^4 and 2^6.
3. (A) From the given conditions, if X > Y and Y > Z, then X must be greater than Z.
4. (C) P is the son of Q and therefore, as R is the child of Q, P and R are siblings.
5. (B) Each number is multiplied by 2 to get the next number. 5 x 2 = 10, 10 x 2 = 20, 20 x 2 = 40, 40 x 2 = 80.
6. (A) Syllogism is a form of reasoning where a conclusion is inferred from two premises. All cats being animals is a universal statement.
7. (D) 'cat' has 3 letters, 'dog' has 3 letters, and 'fish' has 4 letters. The code is the number of letters +1. So, 'bird' has 4 letters + 2 = 6.
8. (B) A is the father of B; since B is the sister of C, A is also the father of C.
9. (C) East and West are opposite directions.
10. (B) This reasoning draws a specific conclusion from general premises.
11. (C) All other numbers are prime, while 20 is not.
12. (A) Each number is multiplied by 2. Thus, 16 * 2 = 32.
13. (A) A is the brother of B, and B is the sister of C, implying A is also C's brother.
14. (C) Since no B are C, then logically, no A can be C as all A are B.
15. (A) The pattern follows a rule where each number is multiplied by 2. (3*2=6, 6*2=12, 12*2=24, 24*2=48).
16. (B) All numbers except 8 are prime, hence 8 is the odd one out.
17. (D) Since we know A > B > C < D, we cannot determine if A is greater or lesser than D.
18. (C) D finishes before A, and A finishes before B, while C finishes after B; this makes C the last.
19. (A) The relationship shows that A is one generation above B, and B is one generation above C, making A the grandfather of C.
20. (C) All items except 'Carrot' are fruits. Carrot is a vegetable, which makes it the odd one out.
21. (D) The differences are 4, 6, 8, 10, 12; adding 12 to 30 gives 42.
22. (C) Each term is double the previous one: 24 x 2 = 48.
23. (D) These are perfect squares; 6 squared = 36.
24. (B) Each letter advances by two positions: G + 2 = I.
25. (C) Each term is the previous term times 2 plus 1: 47 x 2 + 1 = 95.