Following short questions are selected from previous 5 years papers of different boards. Solve these at your own to perform well in annual exams.

1. Write the first four terms of the sequence, if $a_n = na_{n-1}$ and $a_1 = 1$.
2. Write the first four terms of the sequence, if $a_n = (-1)^n(2n-3)$.
3. If $a_{n-3} = 2n - 5$, find the nth term of the sequence.
4. Which term of the A.P. $5, 2, -1, ...$ is -85?
5. If $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in A.P., show that common difference is $\frac{a-c}{2ac}$.
6. If 5 and 8 are two A.Ms between a and b, find a and b.
7. Which term of A.P. $-2, 4, 10, ...$ is 148?
8. Define Arithmetic Progression and Geometric Progression.
9. Find the sequence, if $a_n - a_{n-1} = n + 1$ and $a_4 = 14$.
10. How many terms of the series: $-9 - 6 - 3 + 0 + ...$ amount to 66?
11. The sum of three numbers in an A.P. is 24 and their product is 440. Find the numbers.
12. Find the number of terms in A.P. in which $a_1 = 11$, $a_n = 68$ and $d = 3$.
13. Find 13th term of the sequence: $x, 1, 2 - x, 3 - x, ...$
14. Find the A.M. between $1 - x + x^2$ and $1 + x + x^2$.
15. Find the A.M. between $x - 3$ and $x + 5$.
16. If $\frac{1}{a}$, $\frac{1}{b}$, $\frac{1}{c}$ are in G.P., show that common ratio is $\pm\sqrt{\frac{a}{c}}$.
17. If $a_{n-2} = 3n - 11$, find nth term of the sequence.
18. Find the sum of infinite geometric series: $\frac{9}{4} + \frac{3}{2} + 1 + ...$
19. Insert two G.Ms between 2 and 16.
20. Find the sum of the infinite G.P. $2, \sqrt{2}, 1, ...$
21. Find the 5th term of G.P. $3, 6, 12, ...$
22. Find G.M. between $-2i$ and $8i$.
23. If $y = 1 + \frac{x}{2} + \frac{x^2}{4} + ...$, then show that $x = 2(\frac{y-1}{y})$.

24. Define harmonic mean between two numbers a and b and write down the formula for finding single harmonic mean between a and b.

25. If 5 is the H.M. between 2 and b, then find b.

26. Find 9th term of the harmonic sequence: $\frac{-1}{5}, \frac{-1}{3}, -1, ...$

27. Find 12th term of the harmonic sequence: $\frac{1}{3}, \frac{2}{9}, \frac{1}{6}, ...$

28. Find the sum to n terms of the sequence, whose nth term is $n^2 + 4n + 1$.

29. Find nth term of the H.P.: $\frac{1}{2}, \frac{1}{5}, \frac{1}{8}, ...$

30. Find A.M, G.M(> 0), H.M, if $a = 2$ and $b = 8$.

31. With usual notation, show that $AH = G^2$.

32. If $\frac{1}{k}$, $\frac{1}{2k+1}$ and $\frac{1}{4k-1}$ are in H.P., find k.

Best of Luck