GRAND TEST

SYLLABUS : ALGEBRA, EXPONENTS AND POWERS, DIRECT AND INVERSE VARIATION, FACTORISATION.

All Time allotted is **2 hours.** The **Maximum Marks** are **60**.

1. (a) Simplify 3x(4x – 5) + 3 and find its values for (i) x = 3 (ii) x = $\frac{1}{2}$.

   (b) Subtract: 3l (l – 4 m +5 n) from 4 l (10 n – 3m + 2 l)

2. Multiply the monomials: (a) $\left(\frac{3}{4}\ a^2 + 3\ b^2\right)$ and $4\left(a^2 - \frac{2}{3}b^2\right)$

   Simplify: (b) (a + b) (c - d) + (a – b) (c + d) + 2 (ac +bd)

3. Simplify: (a) $(2.5p – 1.5q)^2 – (1.5 – 2.5q)^2$

   OR

   Use suitable identity to find the product: (a) $\left(\frac{x}{2}+\frac{3y}{4}\right)\left(\frac{x}{2}+\frac{3y}{4}\right)$

4. Show that: (a) $(3x\ +\ 7)^2 – 84x = (3x\ -\ 7)^2$

   OR

   (b) $\left(\frac{4}{3}m - \frac{3}{4}n\right)^2 + 2mn = \frac{16}{9}m^2 + \frac{9}{16}n^2$

5. Using identities evaluate: (a) 71^2

   OR

   Using (x + a) (x + b) = x^2 + (a + b) x + ab, find (a) 9.7 × 9.8

6. Change into standard form: (a) 0.0000000000085　　　　　　　(b) 0.00000000837

   Change into usual form:　(a) $3.02 × 10^{-6}$　　　　　　(b) $3.61492 × 10^6$

7. In a stack there are 5 books each of thickness 20mm and 5 paper sheets each of thickness 0.016mm. what is the total thickness of the stack.

8. Simplify: $\frac{3^{-5} \times 10^{-5} \times 125}{5^{-7} \times 6^{-5}}$

9. Find the value of m for which $5^m ÷ 5^{-3} = 5^5$

10. Evaluate : $\left\{\left(\frac{1}{3}\right)^{-1}\left(\frac{1}{4}\right)^{-1}\right\}^{-1}$

11. The cost of 5 metres of a particular quality of cloth is Rs 210. Tabulate the direct proportion.

12. Suppose 2 kg of sugar contains $9 × 10^6$ crystals. How many sugar crystals are there in (i) 5 kg of sugar? (ii) 1.2 kg of sugar?

13. There are 100 students in a hostel. Food provision for them is for 20 days. How long will these provisions last, if 25 more students join the group?

14. 6 pipes are required to fill a tank in 1 hour 20 minutes. How long will take if only 5 pipes of the same type are used?

15. A loaded truck travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?

16. Factorise: (a) x^2 + xy + 8x + 8y

    (b) 15 pq + 15 + 9q + 25 p

17. Factorise the expression: (a) (lm + l) + m + 1　　　　　　　　　　　　(b) $16x^5 – 144x^3$

18. Factorise the expression and divide:

    (a) 39 $y^3(50y^2 – 98) ÷ 26y^2(5y + 7)$　　　　**OR**　　　(b) $12xy(9x^2 – 16y^2) ÷ 4xy(3x +4y)$

19. Divide as directed

(a) $52pqr (p + q) (q + r) (r +p) \div 104pq(q + r) (r + p)$

OR

(b) $x(x+1) (x + 2) (x + 3) \div x (x + 1)$

20. Divide the given polynomial by given monomial:

(a) $8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$ **OR**   (b) $(p^3q^6 - p^6q^3) \div p^3q^3$