Class 11 Mathematics · Chapter 6: Permutations and Combinations

Worksheet · 20 marks · about 40 minutes · based on NCERT

Name _____ Class and section _____ Date _____

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1. The value of ${}^{8}P_{0} + {}^{8}C_{8} + 0!$ is [1]

(a) 1 (b) 2
(c) 3 (d) 0

2. The value of ${}^{15}C_{13}$ is [1]

(a) 105 (b) 210
(c) 2730 (d) 15

3. A word has 6 letters, of which one letter appears exactly twice and the other four are all different. The number of arrangements of all its letters is [1]

(a) 720 (b) 120
(c) 180 (d) 360

4. Seven runners take part in a school race. In how many ways can the gold, silver and bronze medals be awarded, if no runner gets more than one medal? [1]

(a) 210 (b) 35
(c) 343 (d) 5040

5. Five different letters are to be posted, each in any one of 3 letter boxes. The number of ways of posting them is [1]

(a) 125 (b) 15
(c) 243 (d) 60

6. Write the product $1 \times 3 \times 5 \times 7 \times 9$ in terms of factorials. [2]

7. A team's selectors are to pick 2 spinners from 6 available spinners. In how many ways can they do this? Give a reason why permutations are not used. [2]

8. Find n if $(n + 1)! = 12 \times (n - 1)!$. [2]

9. A 4-digit PIN is made from the digits 0 to 9; 0 may come first. Find the number of PINs (i) in all, (ii) with all four digits different, (iii) with at least one digit repeated. [3]

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10. A team of 4 is chosen from 7 volunteers, and one member of the team is then made its leader. Find the number of ways of doing this by two methods, and show that the two answers agree. [3]

11. Ten points lie in a plane, of which exactly 4 are collinear; no other three of them are collinear. Find the number of (i) straight lines, (ii) triangles, that can be drawn through these points. [3]