

IEM KOLKATA**PERMUTATIONS AND COMBINATIONS**

Instructor: Akash Bhattacharya

Q1) Mohan has 3 trousers and 2 shirts. How many different pairs of a shirt and trouser can he dress up with?

Q2) Shabnam has 2 school bags, 3 tiffin boxes and 2 water bottles. In how many ways can she carry these items?

Q3) A hall has 12 gates. In how many ways, can a man enter the hall through one gate and come out through a different gate?

(a) 100 (b) 121 (c) 132 (d) 144

Q4) There are 25 students in a class with 15 boys and 10 girls. The class teacher selects either a boy or a girl for CR post of the class. In how many ways, the class teacher can make this selection?

(a) 15 (b) 25 (c) 20 (d) 30

Q5) During a summer vacation, of 20 friends from a hostel, each wrote a letter to each of all others. The total numbers of letters written was?

(a) 20 (b) 400 (c) 200 (d) 380

Q6) How many numbers of four digits can be formed with the digits 1,2,3,4 and 5? (Repetition of digits is not allowed)

(a) 110 (b) 120 (c) 140 (d) None

Q7) Find the number of permutations of the letters of the word **ALLAHABAD**?

Q8) In how many different ways can the letters of the word '**LEADING**' be arranged in such a way that the vowels always come together?

(a) 360 (b) 480 (c) 720 (d) 5040

Q9) Find the number of different 8-letter arrangements that can be made from the letters of the word '**DAUGHTER**' so that

(i) all vowels occur together (ii) all vowels do not occur together

Q10) In how many ways, 3 books can be given away to 7 boys, when each boy is eligible for any of the books?

(a) 49 (b) 343 (c) 249 (d) None

Q11) How many words can be formed from the word **CHOCOLATE**, where the first letter starts with a vowel.