[06-02-22-T11]

Combinations

■ **A.**

[1] In how many ways can a committee consisting of 3 men and 2 women be chosen from 7 men and 5 women?

[2] How many 9 letter anagrams can one make using all the letters of WISCONSIN?

■ **B.** A delegation of 4 teachers is selected each year from a college to attend the National Teacher Association annual meeting.

[1] In how many ways can the delegation be chosen if there are 12 eligible teachers?

[2] In how many ways if two of the eligible teachers will not attend the meeting together?

[3] In how many ways if two of the eligible teachers are married and will only attend the meeting together?

■ **C.** A student is to answer 8 out of 10 questions on an exam.

[1] How many ways may he choose which 8 questions to answer?

[2] How many if he must answer the first 3 questions?

[3] How many if he must answer at least 4 of the first 5 questions?

Answers

■ **A**

[1] $\binom{7}{3}\binom{5}{2} = 350$ ways

[2] $\binom{9}{2}\binom{7}{2}\binom{5}{2} \cdot 3! = 45360$ anagrams

■ **B**

[1] $\binom{12}{4} = 495$ ways

[2] $\binom{10}{4} + 2 \cdot \binom{10}{3} = 450$ ways

[3] $\binom{10}{4} + \binom{10}{2} = 255$ ways

■ **C**

[1] $\binom{10}{8} = 45$ ways

[2] $\binom{7}{5} = 21$ ways

[3] $\binom{5}{3} + \binom{5}{4} \cdot \binom{5}{4} = 35$ choices

From

Schaum's **28** TECHNIQUES OF COUNTING [CHAP. 2