Questions: Lectures 5 and 6

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Exercise-1

- (**) Answer the following Bhaskaracharya's question in the form of śloka

वद कति व्यक्तिभेदाः
Tell me
how many combinations
एक-द्वि-त्रि-अदि-युक्ता
containing 1,2,..6
at a time
मधुर-कटु-कषाय-आम्लक-क्षार-तिक्तैः
sweet, pungent, astringent
sour, saltish and bitter.

स्युः एकस्मिन् व्यञ्जने
are there
in a food-item
षड्-रसैः
of 6 flavours

Exercise-2

(***) Explain the following shloka by Bhaskaracharya describing a formula to find the sum of all permutations of n digit number.

स्थानान्तमेकादिचयाङ्कघातः संख्याविभेदा नियतैः स्युरङ्कैः ।
भक्तोऽङ्कमित्याङ्कसमासनिघ्नः स्थानेषु युक्तो मितिसंयुतिः स्यात् ।। २६१ ।।

घातः	**एकादि**	**चयाङ्क स्थानान्तम्**
The product	of 1, 2, 3, ...	upto last digit of given number N
स्युः	**संख्याविभेदाः**	**नियतैः अङ्कैः**
shall be	number of permutations P	of given *n* digits.
सः घातः	**निघ्नः**	**अङ्कसमास**
The product	multiplied by	sum of digits *s*
भक्त अङ्कमित्या	**युक्ताः**	
divided by number of digits *n*,	(and) result S' being filled	

- (**) Find the sum of all permutations of 4 digits 5,6,7,8 using Bhaskarachary's formula.
- (**) How many permutations are there of 4 digits 1,1,2,3 and also what is the sum of all these permutations?
- (**) In how many ways can you distribute 15 apples among 5 children? (without cutting the apples).