الكلية : التربية للعلوم الصرفة

القسم او الفرع : الرياضيات

المرحلة: الثالثة

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اسم المادة باللغة العربية : نظرية احتمالية 1

اسم المادة باللغة الإنكليزية : Probability Theory 1

اسم المحاضرة الأولى باللغة العربية: طرق العد (مبادئ العد)

اسم المحاضرة الأولى باللغة الإنكليزية : Counting Techniques

Chapter one

(Counting Technique (طرق العد (مبادئ العد)

Fundamental principle of counting المبادئ الأساسية لطرق العد

Multiplication principle

If set's A1 and A2 have n1 and n2 element respective there are n1 x n2 ways in which one select from A1 and then one select from A2

Example:

Suppose that a person has a choice of five shirts and the three trousers then he has 5×3=15 different choice of warning a dress

Additional principle

If set's A1 and A2 have n1 and n2 element respectively there are n1 + n2 ways in which either select from A1 or A2 we assume that no two selections can be carried out simultaneously.

For n∈ I^+ , r=0,1,…..,n whereI^+ is the set of positive Integers P(n,r)= $\frac{n!}{(n-r)!}$,

If r=n ⇒ P(n,n)= $n!$ should order with select

Example: How many there chigit numbers can be formed from the six chigits 1,3,5,6,7 and 9

Solution: $P(6,3) = \frac{6!}{(6-3)!} = 6 \times 5 \times 4 = 120$

A permutation of elements with Repetitions

The number of permutation of n (elements)(objects, things symbols) of which n1 are alike n2 others are alike ,…one $n_k$are alike Is given by p(n,n1,n2,…., n_k) provided n1+n2+……+n_k=n

In notation p(n,n1,n2,…., n_k)= $\frac{n!}{n1!n2!,\ldots,n_k!}$ When $\sum_{i=1}^{k} ni = n$

Example: A committee consisting of ten numbers of visits a metro polin city to investigate the changing scenario with respect to traffic problem

Example: three books are recommended for basic course in mathematics (Andysis) and five books for the probability theory .The total number of ways a student can choose the book Is 3+5=8 ways

We can generalization of addition principle as if sets A_i (i=1,2,….,k) have respectively n_i(i=1,2,…,k) elements there are n1+n2 +….+nk=$\sum_{i=1}^{k} n_i$ Ways.