PERMUTATION & COMBINATION

Q. There are 6 roads between A & B and 4 roads between B & C.

(i) In how many ways can one drive from A to C by way of B? 6×4

(ii) In how many ways can one drive from A to C and back to A, passing through B on both trips? $6 \times 4 \times 4 \times 5$

(iii) In how many ways can one drive the circular trip described in (ii) without using the same road more than once. $6 \times 4 \times 3 \times 5$

Nishant Jindal

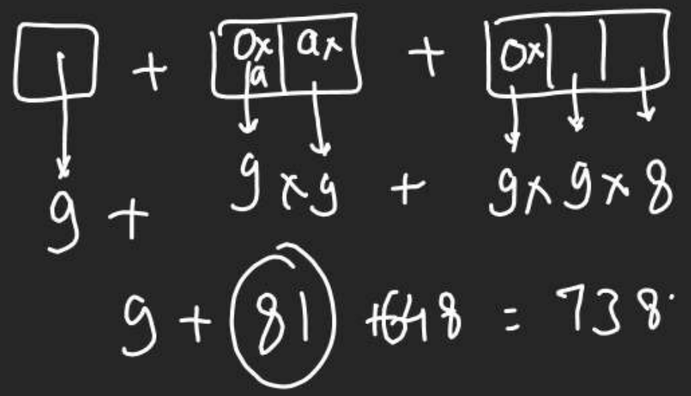
PERMUTATION & COMBINATION

90 - 9

Q. How many natural numbers are their from 1 to 1000 which have none of their digits repeated.

10 ——— 99

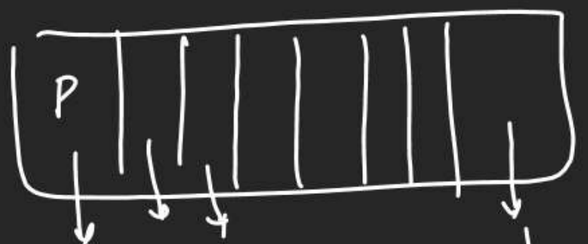
11 22 33 44 55 66 77 88 99



PERMUTATION & COMBINATION

Q. A family is being arranged in a line for a group photograph. If the family consists of a mother, a father, a baby and five children, the number of arrangements that begin and end with a parent is.

(A) 720 (B) 1440 (C) 5040 (D) 40320



$2_{(1} \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 \times 1$

720×2

$= 1440$

Nishant Jindal

PERMUTATION & COMBINATION

Q. (i) Find the number of four letter word that can be formed from the letters of the word HISTORY. (each letter to be used at most once)

(ii) How many of them contain only consonants?

(iii) How many of them begin & end in a consonant?

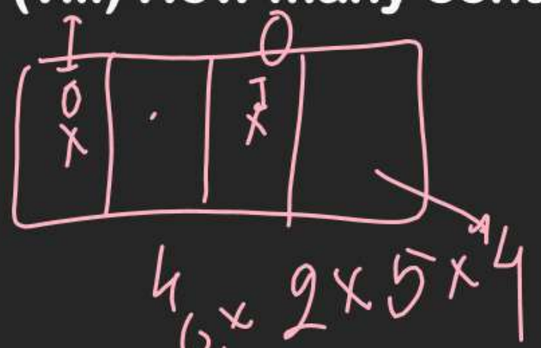
(iv) How many of them begin with a vowel?

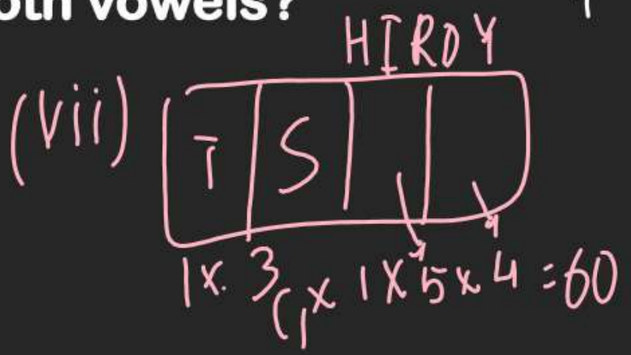
(v) How many contain the letters Y ?

(vi) How many begin with T& end in a vowel?

(vii) How many begin with T& also contain S ?

(viii) How many contain both vowels?





Nishant Jindal

PERMUTATION & COMBINATION

Q. If repetitions are not permitted

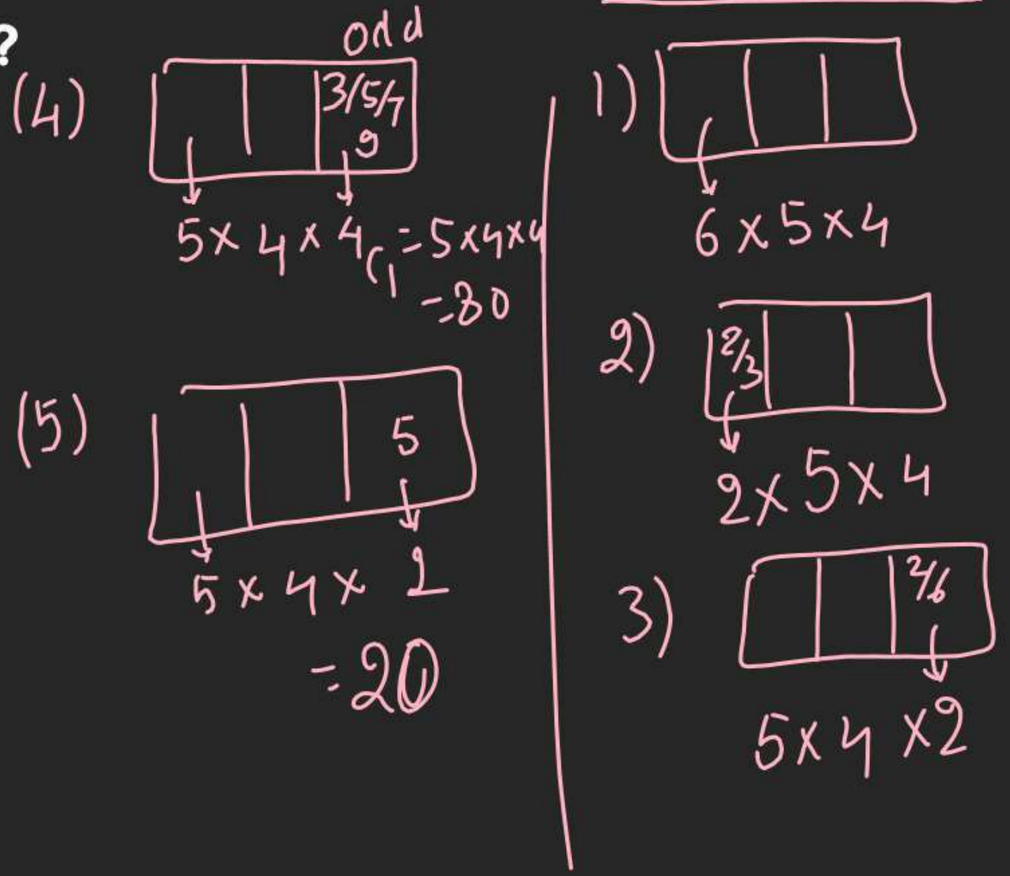
(i) How many 3 digit numbers can be formed from the six digits 2, 3, 5, 6, 7 & 9?

(ii) How many of these are less than 400?

(iii) How many are even?

(iv) How many are odd?

(v) How many are multiples of 5?



Nishant Jindal

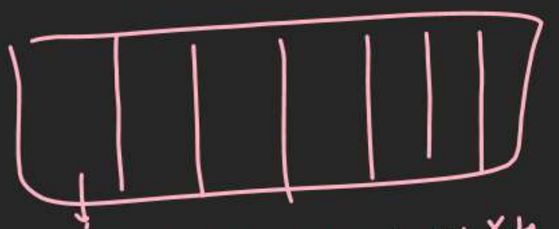
PERMUTATION & COMBINATION

Q. Every telephone number consists of 7 digits. How many telephone numbers are there which do not include any other digits but $2, 3, 5$ & 7?

2, 3, 5, 7 वाले Tele No बनाने हैं

→ Automatically Understood

Rep. allowed.



$4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$

$= 4^7$

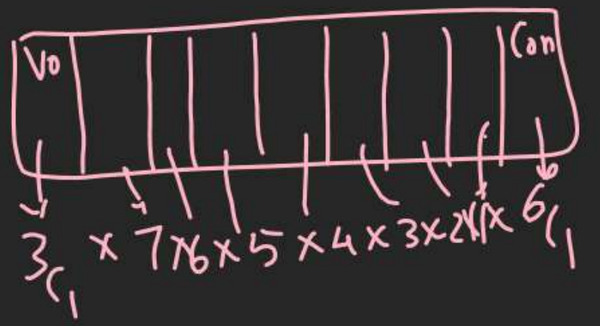
Nishant Jindal

PERMUTATION & COMBINATION

Q. How many of the arrangements of the letter of the word "LOGARITHM" begin with a vowel and end with a consonant?

V = O A I

C = L G R T H M

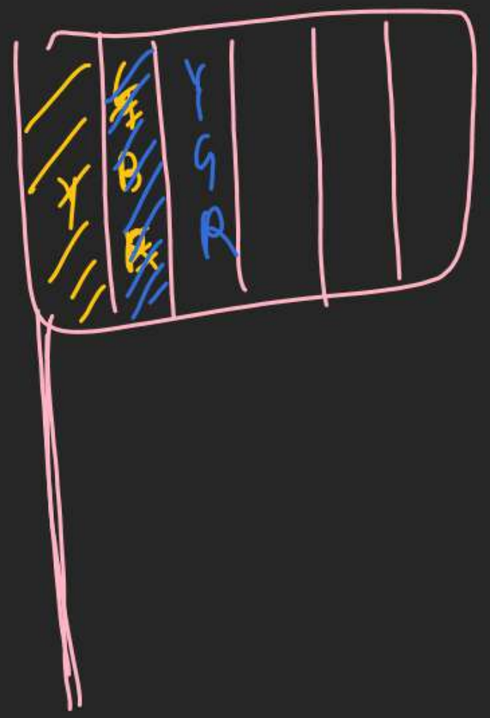


Nishant Jindal

PERMUTATION & COMBINATION

Q. Anew flag is to be designed with six vertical strips using some or all of the colours yellow, green, blue and red. Then, the number of ways this can be done such that no two adjacent strips have the same colour is

(A) 12×81 (B) 16×192 (C) 20×125 (D) 24×216



Y G B R

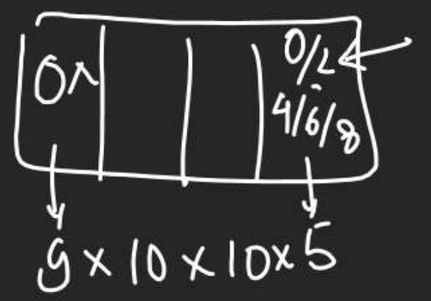
$^4C_1 \times {}^3C_1 \times {}^3C_1 \times$

$4 \times 3 \times 3 \times 3 \times 3 = 243 \times 4$

Nishant Jindal

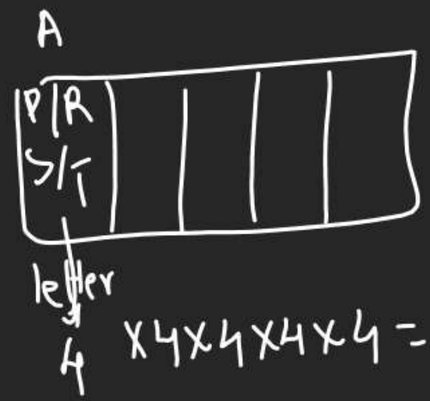
PERMUTATION & COMBINATION

Q. How many four digit numbers are there which are divisible by 2.



PERMUTATION & COMBINATION

Q. In a telephone system four different letter P, R, S, T and the four digits 3, 5, 7, 8 are used. Find the maximum number of "telephone numbers" the system can have if each consists of a letter followed by a four-digit number in which the digit may be repeated.



$4 \times 4 \times 4 \times 4 \times 4 = 4^5 = 256$

Nishant Jindal

PERMUTATION & COMBINATION

Q. Find the number of 5 lettered palindromes which can be formed using the letters from the English alphabets.

ULTA SIDHA उल्टा सीधा

NAYAN

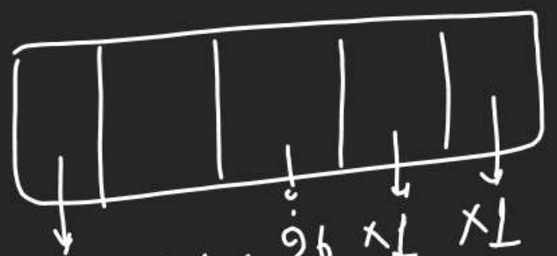
malayalam.

~~MALYALAM~~ मलयालम

JAHAJ

AAAAA

SAS



$26 \times 26 \times 26 \times 1 \times 1$

$= (26)^3$

To 1st Place Pr Aya vahi Last Par Aayega.

=) 1 hi Tarika

PERMUTATION & COMBINATION

Q. Number of ways in which 7 different colours in a rainbow can be arranged if green is always in the middle.

V I B G Y O R

$= \lfloor 6 = 720$

PERMUTATION & COMBINATION

Q. Find the number of ways in which 4 boys and 3 girls can be seated in a line if the terminal seats are occupied by the boys.

2B
3G

$4 \times 5 \times 4 \times 3 \times 2 \times 1 \times 3$

Nishant Jindal

PERMUTATION & COMBINATION

Q. Numbers of words which can be formed using all the letters of the word "AKSHI", if each word begins with vowel or terminates in vowel.

LATER

Venn chagram

Nishant Jindal

PERMUTATION & COMBINATION

Q. A letter lock consists of three rings each marked with 10 different letters. Find the number of ways in which it is possible to make an unsuccessful attempts to open the lock.

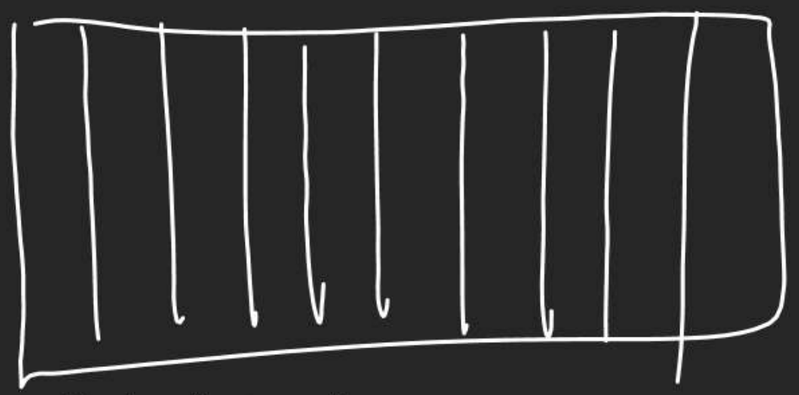
$10 \times 10 \times 10 - 1 = 999$

(correct option)

Unsuccessfull Attempt

PERMUTATION & COMBINATION

Q. How many 10 digit numbers can be made with odd digits so that no two consecutive digits are same.



1, 3, 5, 7, 9

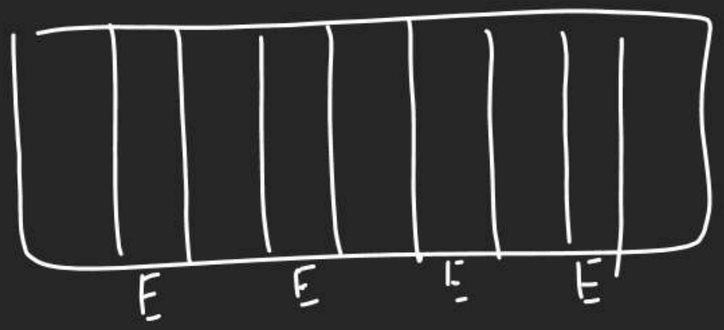
Repeat होना

$5 \times 4 \times 4 \times 4 \times 4 \times - - -$

$= 4^9 \times 5$

PERMUTATION & COMBINATION

Q. It is required to seat 5 men and 4 women in a row so that the women occupy the even places. How many such arrangements are possible?

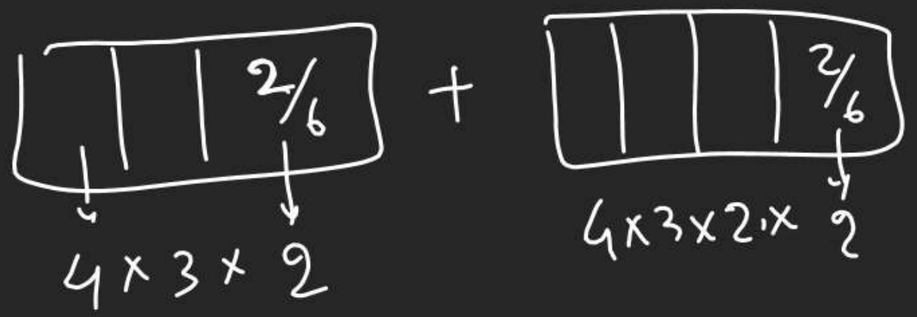


$5 \times 4 \times 4 \times 3 \times 3 \times 2 \times 2 \times 1$

Nishant Jindal

PERMUTATION & COMBINATION

Q. Find the number of three digits or four digit even numbers that can be formed from the number $2, 3, 5, 6, 7$ (without repetition).



$$24 + 48 = 72$$

Nishant Jindal

Q IHMW can clean & clouded days occur in a week assuming that entire day is either clean or clouded?

$^2C_4$

$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

$= 2^7 = 128$

Q For Visitors A, B, C, D arrive at a town which has 5 hotels In HMW can they dispense themselves among 5 hotels, If 4 hotels are used to accomodate them.

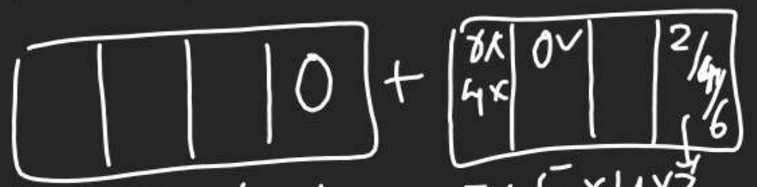
$H_1\ H_2\ H_3\ H_3\ H_5$

A B C D

$5 \times 4 \times 3 \times 2 = 120$

Q3 HM 4 digit even Nos can be made using 0, 1, 2, 3, 4, 5, 6.

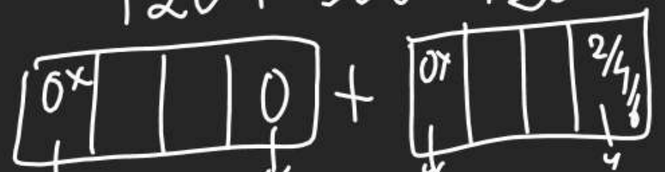
RNA



$6 \times 5 \times 4 \times 1 + 5 \times 5 \times 4 \times 3$

$120 + 300 = 420$

RA



$6 \times 7 \times 7 \times 1 + 6 \times 7 \times 7 \times 3$

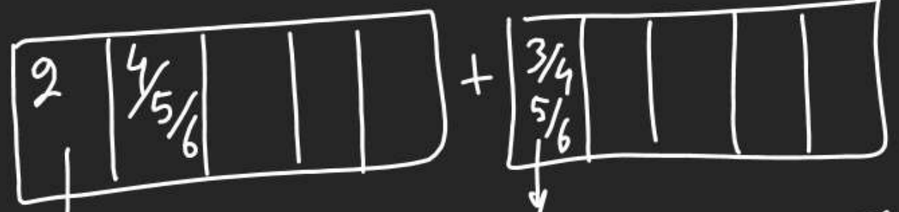
$= 6 \times 7 \times 7 \times 4$

Nishant Jindal

Q Using 0,1,2,3,4,5,6

HM nos of 5 digits can be made

1) Gr. than 24000



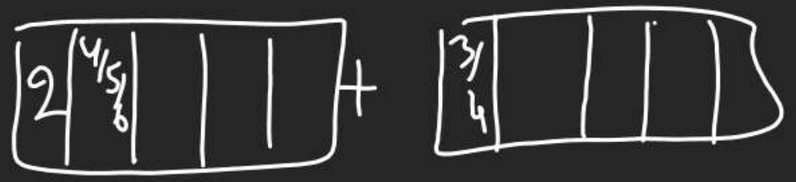
$1 \times 3 \times 7 \times 7 \times 7 + 4 \times 7 \times 7 \times 7 \times 7 - (1)$ Jaye

Jitu 1st case me 24008 AA Jaye

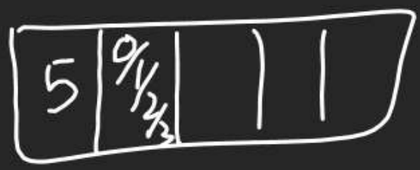
(2) less than 54000

$1 \times 4 \times 7 \times 7 \times 7 + 4 \times 7 \times 7 \times 7 \times 7 = 32 \times 7^3$

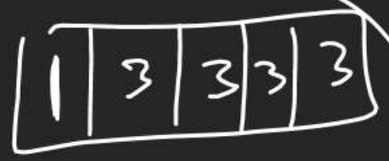
(3) No. Greter than 24000 less than 54000



$1 \times 3 \times 7 \times 7 \times 7 + 2 \times 7 \times 7 \times 7 \times 7$

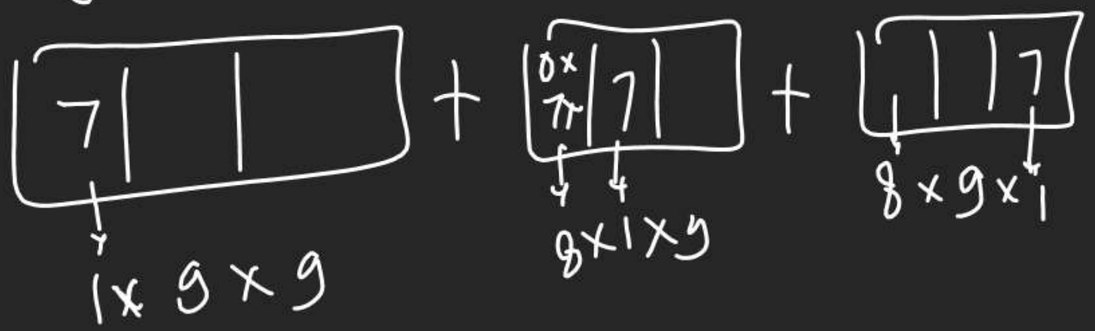


$+ 1 \times 4 \times 7 \times 7 \times 7 - 1$



Nishant Jindal

Q Find NO wl forming 3 diyit No. containing only one 7.



81 + 72 + 72 = 225 Ans