1. How many 2000 Wh SA Let U which A20A30A 1. (AIVAZUA) not ex = 141+181+10 111) LEE ALLAS +1A4] - | A10 787 sets then Note: =1A1 +181+161-18nc1-1(Ans) u(Anc) [AUBUC] = 1A1+181+161- [An8]-18nc1-Whee Aibic are any three 5863 then = 141+181+101 - 18nc|-1Ans|-1Anc]+ olet Aib are any two non empty sets = | 81+160c1 - 140 (BUC) | 1) Principle of Inclusion (or) Exclusion :-Unit- I permatations and Combinstan 13 principle of shill-sion lord exclusion EARN 1AU81 = (AI+181-1AA8) Proof: 1call + | Anbacl L.H.S = 14080cl 7

| AnBn Ancl = |A1+1B1+1c1-1AnB1-1Bnc1-1Anc1+ 1 ANBACI =R-H-5 .

iii) Let A1, A2, A3, A4 are any four nonempty sets then IAIVAZVAZVAUI = IAII+IAZI+IAZI + 1A4) - 1 A1 nA21 - 1A2 nA31 - 1 A3 nA41 - 1 A4n A11 - | AINA3 | - | AZNAY | + | AIN AZNA3 | + | A2 NA3 NA41 + | A3 NA4 NA1 + | A4 NA1 NA21 -[AINAZNAZNAY]

Note: [(A1UA2UA3UA4) = |U| - |A1UA2UA3UA4|

1. How many positive integers not exceeding 2000 which are divisible by 7 or 11.

hen so Let U denotes set of Psitive integer not exceeding 2000

.. 101 = 2000

et

ncl

Anl

Let A denotes set of Positive integers which are divisible by 7.

1A1 = 1 2000 1

= 286

Let B denotes set of positive integers which are divisible by 11.

181 = | 2000 |

- 182

Let ANB denotes the set of positive intege which are divisible by 7 and 11. [7×11=7

1AAB1 = 1 2000 1

526 19

: The total no of Positive integers which are divisible by 7 or 11

[AUB] = [AI+|B| - [ANB] THE SHEET HERE

= 286+182-26 = 442

2. Find the noof integers from 1 to 250 that are divisible by any of the integer 2/3 and 6.

sol Let v'denotes set of positive integers not exceeding 250.

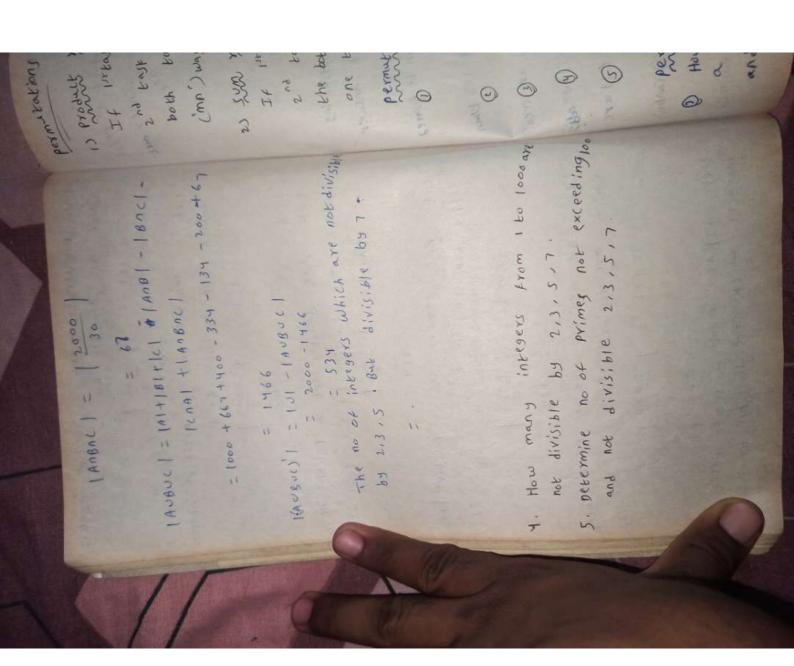
101

Let A denotes set of positive integers which are divisible by 2

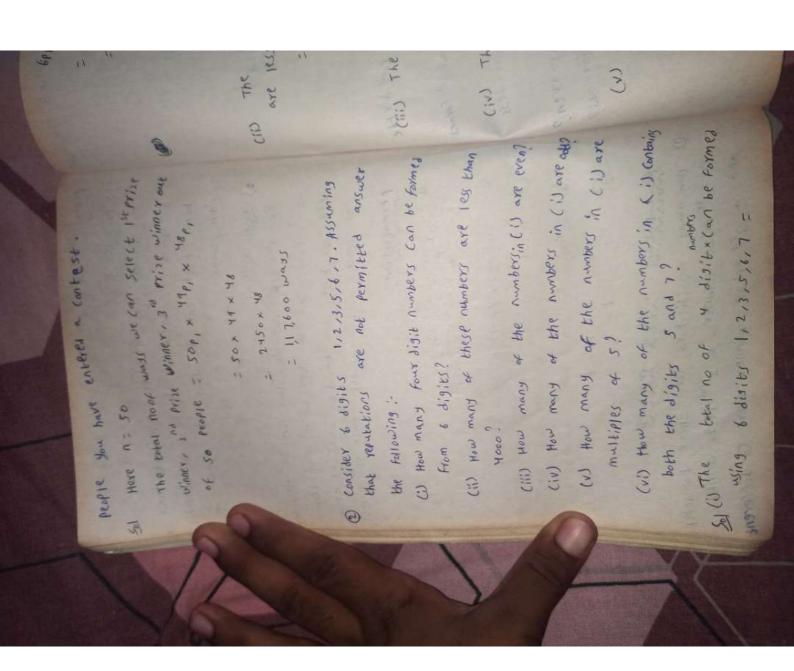
Let cna denotes set of Positive integes which are divisible by 6,2. [6x2=127 which are divisible by 316. [3x6:18] Let BAC denotes set of Positive integer which are divisible by 2,3. Exace Let Ang denotes set of rosteine intop. Let 'c' denotes set of positive intege, Let '8' denotes set of Positive interen 14081 = 12521 which are divisible by 6 1811 = 1250 1 1CAM = 1 250 which are divisible by 3 101 = 1250 14.2 181 = 1250 18 141 = 1 250 ive into [TX II] the inte 1 to 25

Let B denoky set		vet a senotes s		LEE ANB DEN WHICH ONE DI	18481	Let But de		ntesm, Let end which are	lesen	Lee Ang
	Let Angric denotes set of Positive integers which are divisible by 2,5 and 6.	Anbril = 1250	The bokal no of positive integers which	[ADBUC] = 141+181+161-1An8] - 18ncl-	T+12-41-34-34 + 48+ 521		Determine the no of Positive integery 1, Where the not divisible by 2,3 is but	it is divisible by 7. Let U denotes set of positive integer		1A1 = 1 2000 1
1	Let Angric	langue 1	THE EDEAN	[AUBUC]	1115	9	3. Determine	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Lee 4	Ch.Ch a (4)

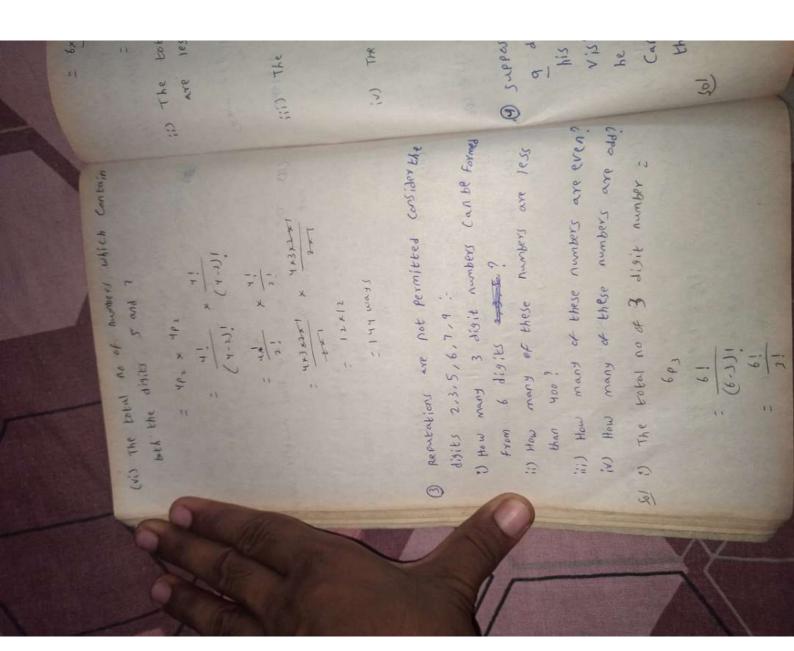
positive intesers		of positive intoers	2 2 00 6	t of positive intensus, by 213. [ex326]	1	But dender set of Positive integra are divisible by 315. [3x5=15]	134	set of Positive integral by 5,12. [sx1210]	2000	Lee Angre denotes set of positive integers which are divisible by 2,3,5.	X
Let B denotes set of P	181 = 1 2000		1000 1 2 121	LEE ANB denotes set of positive introp, which are divisible by 213. [2x326]	1 4181 = 1 2000	Let Buc denzes set of Positive intess, which are divisible by 315. [3x5=15]	1806 = 13000	Let CAA denotes set of resitive integer	1611 = 12000	Lee Angac denotes set of positive integers which are divisible by 2,3,5	
Pesitive No		34.5		8 - 1806 -	L + 12	'rive integery	12 n 2 2000, y 2, 3 15 642	positive intem	10 0 1 1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1		



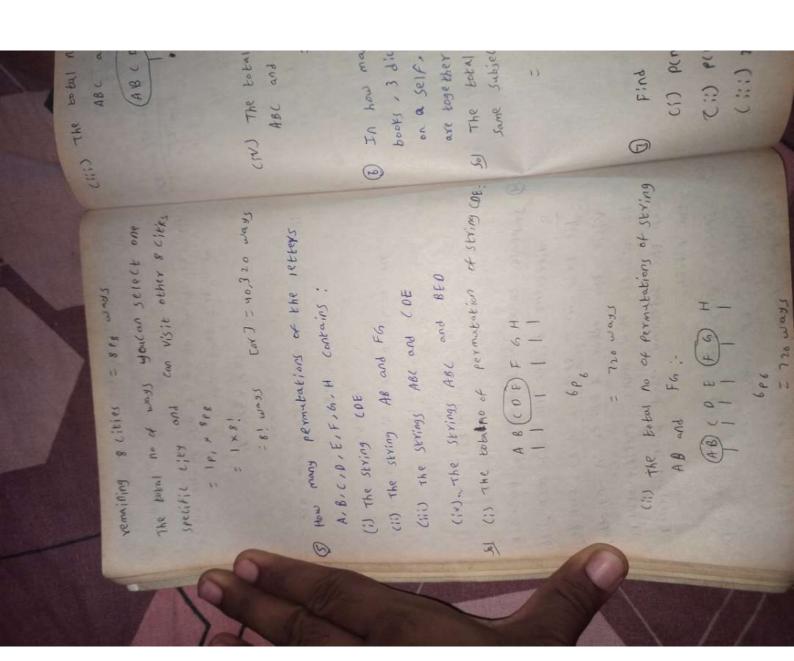
a 3rd Prize Winner from So different How many Possibilities are there to serre a 1st Prize Winner, a 2 nd Prize winner one task after another task is imenden If INTERSE can be done in in way any in 2 nd Enst can be done in 'n' ways then the the both best can be done with at ating both bask can be done with begether is 2 nd task can be done in in ways then If intest can be done in in ways and permutation without reputations. 1 = 1 (n-1)(n-1) ---3-2-1 (1/2-V) 11 - Product xxls :permutation .. े शहर क्रिक्ट त (mr) ways. permatations: not exceeding to which are noted from 1 to 1000 VIS: 618 637. . 1 / 5

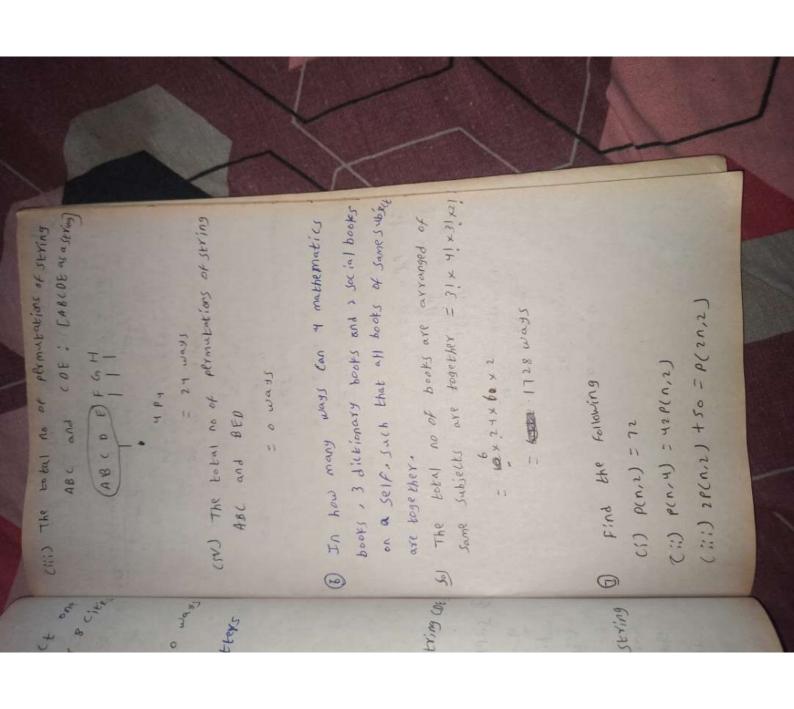


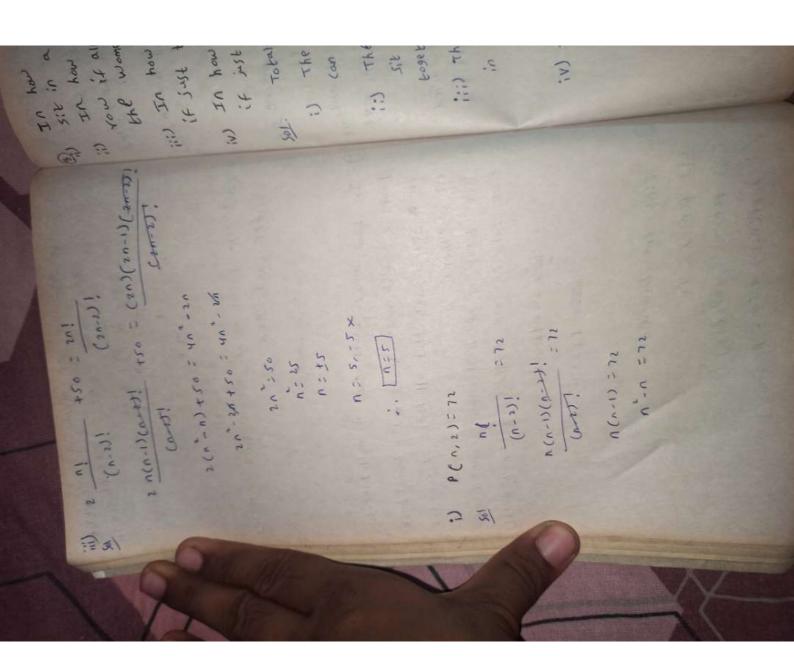
	661 × 561× 461× 361
select 1st	1 6 x 5 x 4 x 3
Tize winner "4	= 360 west
400	
	Sem page
	- 3 60 ways
	The Lotal no of 4 digit numbers which
	~
7 Meun	= 3P, × 5P, × 4P, × 3P,
Sul man	
itted answer	16 mm 081 =
Para to Can	The total noof even numbers :-
nwet so m	2 2 p x 5 p x 3 p 1
are leg than	120 way
(; () are over	(iv) The Botal " aven
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ers in cidan	(v) The Lotal
Ki) Contra	1 1p, ×5p, × 4p, × 3p,
Crime	
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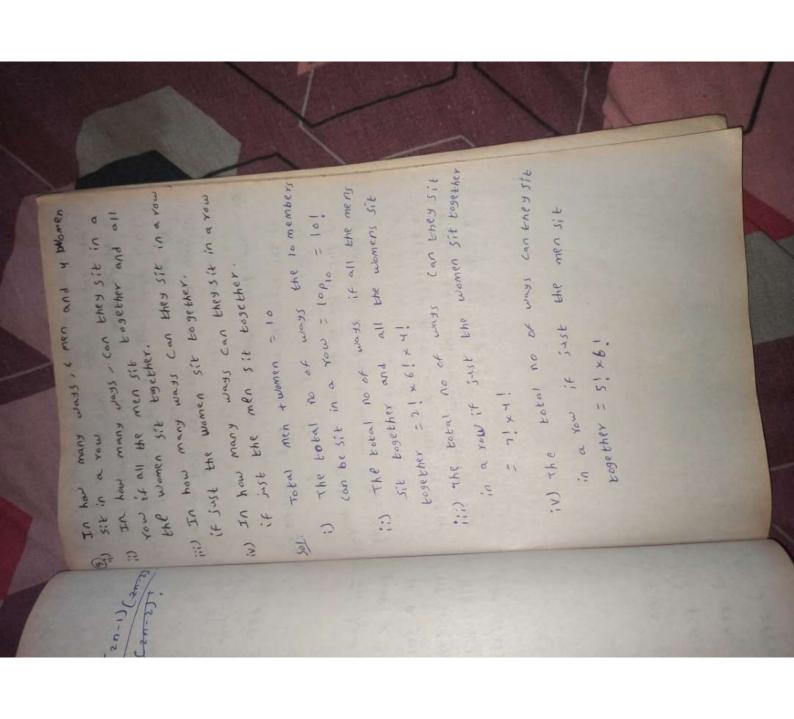


his trip in a specific city, but heen specific city needs the first you can visit the other scities in any other 9 different eities. He must besin with he wishes. How many Possible orders 19 suppose that a salesman has to visit Can the salesman used when visiting The total no of ways he can visit iv) The total no of odd numbers are :iii) The total no of . Even numbers are .. total no of 3 digit numbers which = 2P, X5P, X4P. 360m085 = total - even = 2p, x 5p, x 3p, skam of oh - 021 -= 40 ways SELECT IN 1P, ways AYE 1655 Ethan 400 "-6x5x4x3x3xt 120 Ways the Lities. Contain 5 are even (PPO due 54) Lan be formed Consider the are 1855 umber =

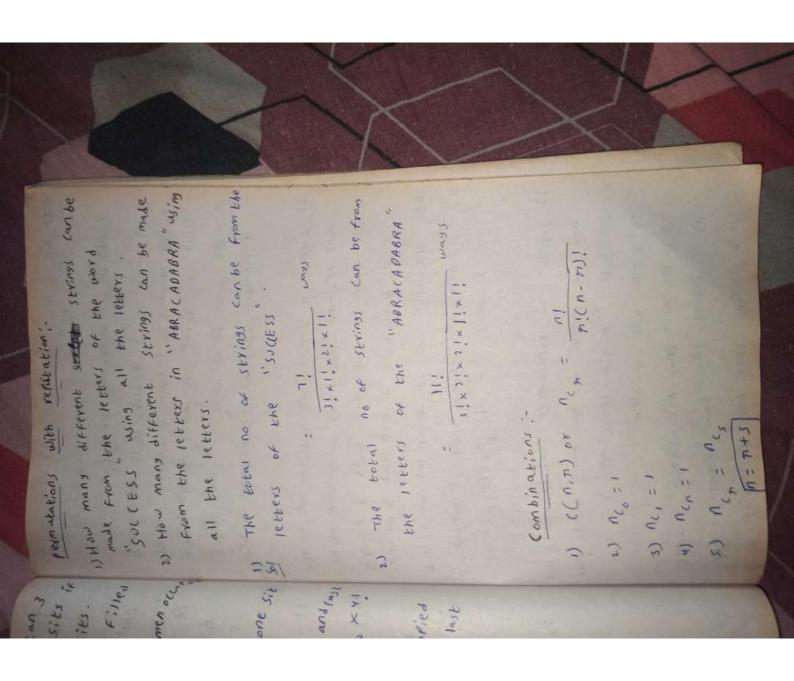


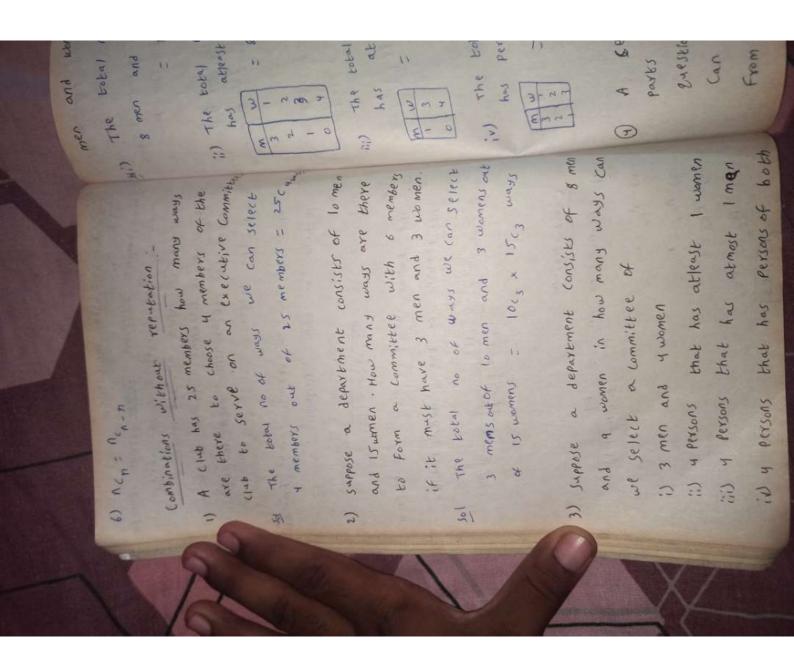


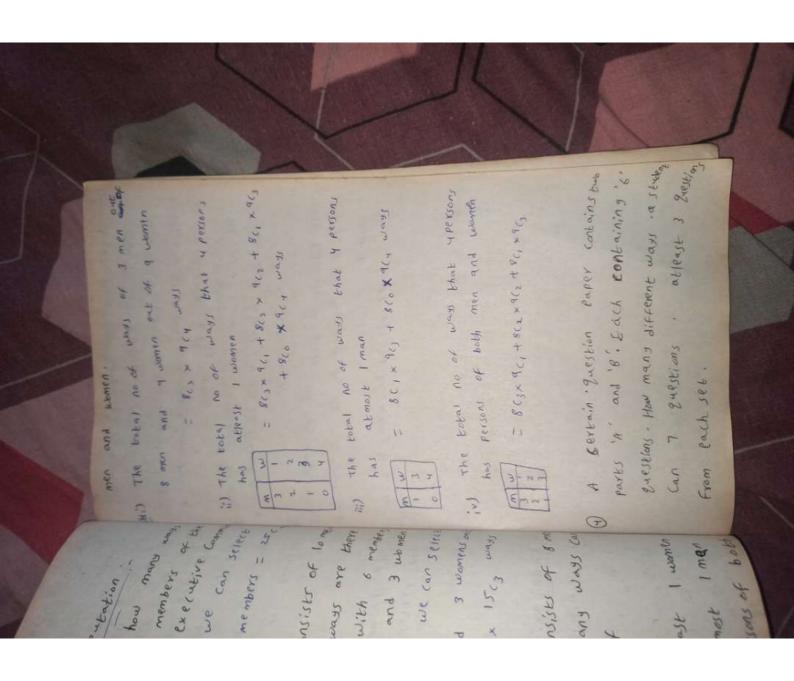




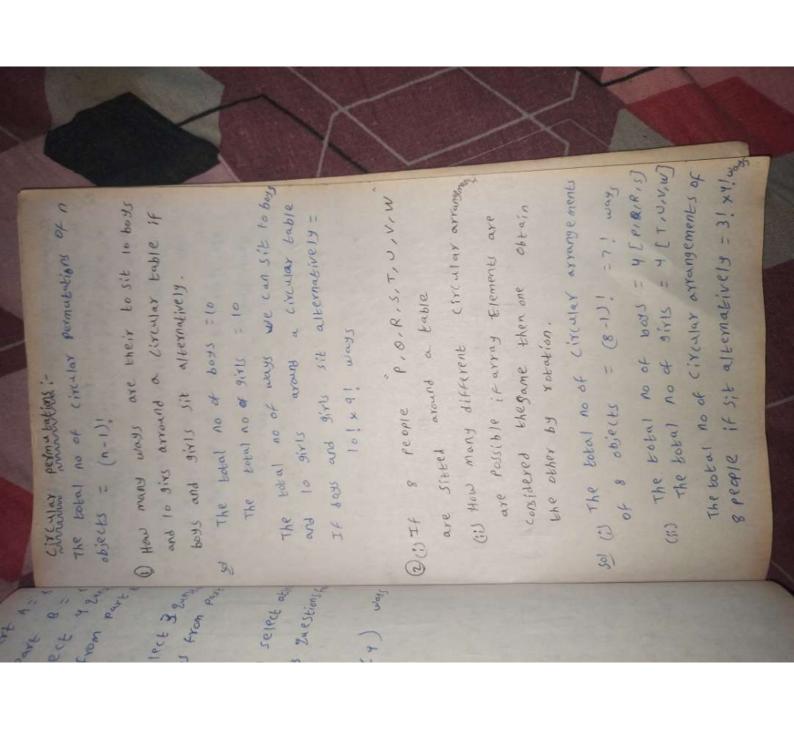
2) How many The tota from the the 18 2597 Jug. Combi all the MADON MANY made from le Hers perm stations 2) The (7 is the total no of way that anyone sit sel is the total no of ways the first and lay Sits must be Filled by men = 3p2 x 41 iii) The botal no of ways men occupied in men occupied first 35 its and wamen occu, first 3 sits and women occupied last ii) The first and last sits mast be filled men and 3 women in a row of 6 sits if @ In how many different orders can 3 :) ANY ONE booke sit in any of these sits. in any of these sits = 6P6 = 6! 17418 1 The bobal ment women = 6 3 5/65 = 31×3! last Um 3. 5its. 原



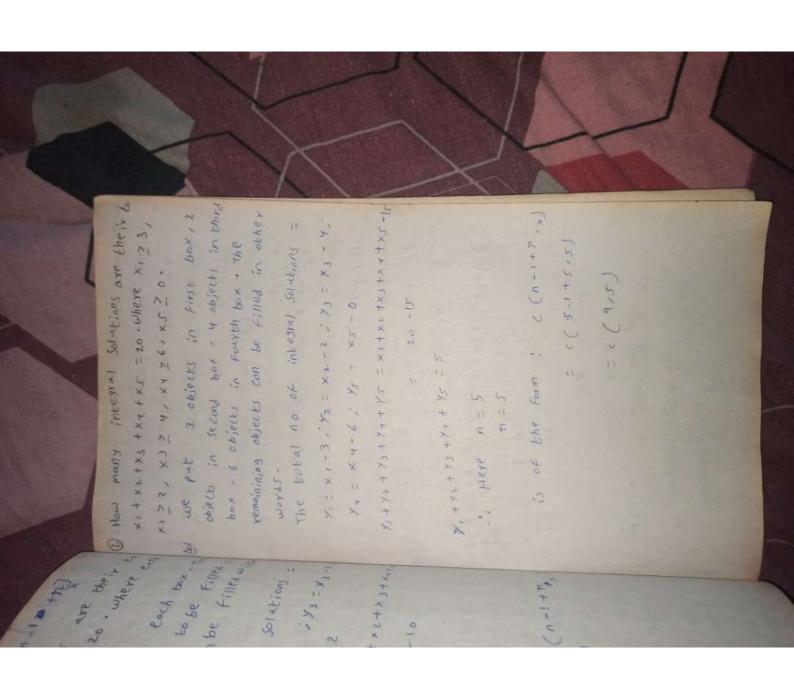




1 How many GU Hor and to give objects = boys and IF 603 are COR The bobal Chrading. 50 (3) The are 350 O CO It 3 guestions From part A and 3 guestions from The bobal no of ways we can select athey from part A and a questions from part 8 The no of ways we can select 3 question The no of ways we can select 4 2 texting From park A and 3 questions from part 8 wage Sel Tobal no-of questions in part A = 6 Total no of questions in part 8 = = (664×663)+(663×664) = bey x be3 ways = 663 x 664 ways part 8.



The bokal no of X: 9-1× = 1 the total no of objects to be Filled is 10, puniming objects on be filled is 10, puniming objects can be filled in 10, puniming objects can be filled in 10. 5x + xx + 8x + 8x + 8x NO X 1-31. YS .. X+42+ Y3+ X+ + X ", Heye A = 5 is of the f 9 = 1 who pays a objects in each box. Then got 6 objects but the total no of objects in ... X + 42+ 43+ ×4+ ×5 = x1+x2+x3+x4+x3 13 of the form :- c(n-1+The,) Y=x1-1, x2 = X2-2 ; X3 = X3-2; How many integral sofutions are their to xi + xz + xz + xx+xs = 20 · where each The bolal no of incegral solutions = Intregral equations : centin + 12] ((10-1 + 5,5) (5/H1.) 2 = 14: ×4-12, X5: ×5-2 01 = 5x + xx + xx + xx = 10 Here A = 10 other words. ब



+x3+x4+x5 = 20 wher x12-31 x220, 0 find the Binor Expansion o The coeffic expansion Expansion what the Find Find Bloomial Given XIZ-3 means to add 3 in the 19 0 X1 = x1, X2 = x2 - 0, X3 = x3 - 4, X4 = x4 501 we put y objects in 3rt box: 2 objects Y, + Xz + Y3 + Y4 + Y5 = x, + x2 + x3 + x + xx THE remaining objects can be filled with the form ((1-1+12,1) B Haw many integral solutions are their XI + K, in the box and 2 objects in 5 th box The betal no of integral solutions -Newsthe both no of boxes 1523. = C(5-1+15,15) = c(19115) X 2 X X X Z X X X Z 5 X Lotal no of boxes. Ys: 45-2. other words . Here

