11/4 11/19 AN 3/4 Le of Howally = Me to Meter the seat of Ha: Not all the above are equal to As sample sizes are equal, so we can use $S\omega^2 = S_1 + S_2 + S_2 + S_3 + (6.5)^2 + (7.4)^2$ $8B_{1} = 1 \times [3.3]^{2}$ [: 3.3 = 90.2 + 89.3 + 85 $\frac{1}{|t-1|} = 88 \cdot |t+1|$ $8B = 30 \times [(90.2 - 88.2)^2 + (89.3)8.2)^2 + (85 + 88.2)^2]$ SB = 15 * 15.45 = 231.75 their of marking fashiffus spead for ab ship is 1 1 Tobs = SB 11 = 231. 75 = 4.40 sent of municipality of 52.62 per to millan hitology but it con in a F2,87,0.05 = 3.10 Fobs > F2,87,005

.. We can reject tho. .. We have sufficient evidence to conclude that there, significant difference in the mean yields. of a pay see is a famous son 12 of a significant after 1.b) Ho: $6^2 = 6^2 = 6^2$ Ha: Not all variances are equal. Test stastistic $f_{\text{max}} = S_{\text{max}}^2 = (7.8)^2 = 1.49$ Rejection Region (1174 # 28) + (513 (519) + (5133 - 517 P)) × 98 = 98 Fmox L F3129,0:05 .. We cannot reject the : We do not have sufficient evidence to conclude that not all variances are equal. Hence the condition of equal population variances for test in Parties is not violated.

Qa. Randomized Block Design.

Observations for a Randomized Block Design can be expressed as the sum of three terms.

Jij = M + di + Bj + Ejj

where,

u: an overall mean that is an unknown constant L: an effect due to treatment i; Li is an unknown constant.

Bj: an effect due to block j; Bj is an unknown constant

Eij: a random evvor associated with the response on treatment i, block j.

2.6)	Subject - 3								
	Type of music	1	2	3	4	Som			
	No music	20	17	24	20	81 41			
	Hard Rock	20	18	23	18	79 92			
	classical	24	20	24	22	93 32			
	8um	64	55	49	60	253 %			
		3.1	3.2 P	9.3	2.4				
	TSS = & y'ij	-	J		[: b=	4,t=37			
	1 - FR. 28 - 548 31		bt man		328				
	E yij = (20)2+ (20)2+ (124)2+ (17)2+ (18)2+ (20)2+ (24)2+ (23)2+ (24)2								
	1,5 + (20) + (18) + (22)								
	appear and transfered a rit army								
	= 5431								
1	seconds acres H. H. Samet substitutes								
	TSS = 5431 - (253)2 5431 - 5334.08								
2.414	ge int				oto d				
	TSS = 96.92								
	SST = \S y2 \ - y2.								
	$SST = \left(\frac{\sum y_{i}^{2}}{b}\right) - \frac{y_{i}^{2}}{bt}$								
	$SST = (81)^{2} + (79)^{2} + (93)^{2} - (253)^{2} = 28.67$								
	4 12								

	S8B = 11	(2 y2)	y2.		142					
		(i F)	bt of	un tr spor						
	12 12	121	.,0	Jegar Jold						
	$SSB = (64)^{2} + (55)^{2} + (74)^{2} + (60)^{2} $ (253)									
	er fs	3		10/1/201912						
	53 11	33	13	mac						
	SSB = 64.92									
	H. 1 1 1 2 - 23T									
	SSE = TSS - SST -SSB = 96.92 - 28.67 - 64.92									
	8SE = 3.33									
1 1 1 1 (100) + (20) + (20) (FI) + (10) + (10) + (10) + (10)										
-	(150 + (31) + (65) + 1									
	ANOVA for a Randomized Block Design.									
1882 =										
	Source due	Sum of	46	Mean square	F					
	53 to 18 15	squares (33)	(2) -1/27	a (MS)						
	Treatment	28.67 51	2	14.33	26.05					
			29.	P - 22/2						
	Blocks	64.92	3	21.64	39.34					
-			10 * 1 10	729						
-	Eurol	3.33	6	0.55						
	Potals 1	96.92	M. P. F.	131 - 13						

-> Ho: 21 = 22 = 23 =0 Ha: Not an of the above are equal to zero. TS = Fobs = MST = 26.05 MSE a. Jam = prainting quitolat as P-value: P(F2,6> Fobs) = P(F2,6> 26.05) P-value lies between 0.001 and 0.005 .: We reject Ho! (1-14) .. We have sufficient evidence to say that there is difference among treatment means -> Ho: B1 = B2 = B3 = By =0 Ha: Not an of the above are equal to zero. $B = \frac{668}{MSE} = \frac{39.34}{MSE}$ P-value: P(F3,6 > Fobs) = P(F3,6 > 39.34)

P-value 2 0:001

.. We have sufficient evidence to say that there

is difference among block effects.

20. Relative efficiency = MSECR MSERR MSERR 1 31404-7 8000 = (b-1) MSB + b(E-1) MSE RRANT (bt-1) MSERB 1571212 9/21 in tart une of matibile friends sund and C= (4-0 x 21.64 + 4 x (3-6) x 0.55 (4*3-1) * 0.55 1010 A 100 100 00 00 10 10 10 100 304 1 11 = 64.92, +4.9 6.05