

HOPE AI

ANOVO Problem statements Document

ANOVO (Analysis of variance): is a statistical tool used to compare significance of variances across the means (or average) of different groups.

Check ANOVO:

- Set up hypotheses and determine level of significance.
 - H_0 : Means are not all equal, $\alpha(p\text{-value}) < 0.05$, then reject H_0 ; accept H_1
 - If cal F value < Table value, then reject H_0 ; accept H_1 .
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Problem statements for ANOVO:

- 1) In a manufacturing industry of soap, there are 4 brands & with compositions it is segregated into 3 groups:

Brands	comp-1	comp-2	comp-3
Brand-1	12	30	27
Brand-2	15	21	29
Brand-3	23	22	25

A) Test whether there are any significant preferences in brands, answer in 5% level.

(1-way classification)

B) Test whether there are any significant preferences in brands and compositions also, answer in 5% level (2-way classification)

- 2) In a placement drive, there were 4 candidates separated as follows:

candidates	gender	mba_p	etest_p	est_salary
A	M	8	72.3	400000
B	F	7.6	81	450000
C	F	8.2	77	600000
D	F	9	92	850000

A) Test whether there are any significant preferences in candidates, answer in 5% level

(1-way classification)

B) Test whether there are any significant preferences in mba pass mark and gender, answer in 5% level (2-way classification)

- 3) 3 patients were diagnosed a diabetics, they went for homeopathy treatment, observe the number of days of treatment to reduce their sugar level as follows:

patients	gender	before_sugar_level	recovery_days	after_sugar_level
AB	M	240	25	170.2
CD	M	220.4	20	166
EF	F	200	18	150

A) Test whether there are any significant change in after_sugar_level. (1-way classification)

B) Discuss the analysis of variance in the before_sugar_level and the after_sugar_level.
(2-way classification)

- 4) In a logistic & supply chain management, there were several goods to be delivered to several places by the delivery boys from the godown as tabulated below:

d_boys	chennai	coimbatore	pondy	bengaluru
a	1294	564	567	7697
b	2345	765	765	5656
c	5463	453	78	766

A) Perform ANOVO test to test the homogeneity of the mean of the 3 delivery boys.

(1-way classification)

B) Discuss the analysis of variance in the coimbatore area and the bengaluru area deliveries. (2-way classification)

- 5) In a bank, there are 3 different other branches whose transactions are by 4 customers at various branches.

Customers	Branch-1	Branch-2	Branch-3
ABC	1500	4500	2900
CDE	2000	300	20000
FGH	2400	4000	1000
IJK	5000	2000	3000

A) Test whether there is any significant difference in the amount of transactions

(1-way classification)

B) Test whether there is any significant difference in the amount of transactions and
Significance difference by the customers. (2-way classification)