

#### Parchyanath Chartrable Brust's

## A B SIEVI INSTITUTED OF TROUBLY

(Approved by AICIE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

Subject: Applied Mathematics IV

SEM:IV

The means of a random sample of size a per are 196.42 & 198.82 respectively. The sum of the squares of the deviations from the means are about a 18.73 respectively. Can the samples be considered to have been drawn from the same population.

Soln:-

$$N_1 = 9$$
  $N_2 = 7$ 
 $\overline{X}_1 = 196.40$   $\overline{X}_2 = 198.80$ 
 $E(X_1 - \overline{X}_1)^2 = 26.90$ ;  $E(X_1 - \overline{X}_2)^2 = 18.73$ 

Mull hypothesis µ1= 12

Alternative hypothesis µ1=10.

2) Test statistic
$$Sp = \sqrt{\frac{5(x_1 - x_1)^2 + 5(x_1 - x_2)^2}{n_1 + n_2 - 2}}$$

$$= \sqrt{\frac{26.9418.73}{9.47-2}} = 1.81$$

**Prof. Nancy Nimal** 

Department of Humanities and Applied Sciences



#### Bushvenschi Greatents Garges

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$$SE = 8P\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$
  
= 1.81  $\sqrt{\frac{1}{9} + \frac{1}{7}} = 0.91$   
 $E = \frac{x_1 - x_2}{SE}$   
= 196.42-198.82  
 $= \frac{196.42-198.82}{0.91}$   
= -2.64  
Level of significance

(3) Level of significance X-0-05

(4) Critical Value The value of Ital at d= 0.05 for n,+n2-2=124 d.of & IFX1=2.145

(E) Decision:- IFI>1FX : We reject the hypothesis.



#### Parshvenerth Charitable Gruet's

## A P SHAH INSHIMMIND OF MECHNOLOGY

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# Subject: Applied Mathematics IV

SEM:IV

3 the heights of Six randomly chosen sailors are in inches; bs, bs, bs, ba, 71 & 72. The heights of 10 randomly chosen soldiers are 61, b2, 65, 66, 69, 69, 70, 71, 72 & 73. Discuss in light that these data throw on the suggestion that the soldiers on an average are tallor than sailors.

80/n E-

E -					
X13	di	oli <sup>2</sup>	1	di	$di^2$
63	-5	25	61		
65	-3	9	62		
68	6	0	65		
69	1	1	66		
71	3	9	69		
72	77	16	69		
			70		
			71		
			72		
			73		

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SEM:IV

$$\frac{7}{9} = \frac{406}{6} = 68$$

$$\frac{7}{9} = \frac{678}{10} = 67.8$$

$$\frac{60163.60}{610.2} = 3.9$$

$$\frac{60163.60}{610.2} = 3.9$$

$$\frac{8E}{9} = \frac{9}{10} = \frac{1110}{10} = 2.014$$

$$\frac{1}{9} = \frac{1110}{10} = 0.099$$



## Parchyanath Charitable Trust's

# A. B. SINI INSUMUUND OF MENNOLOGY

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Subject: Applied Mathematics IV

SEM:IV

3 Level of significano:

(4) Critical value: -

The value of  $f_{\chi}$  at  $\chi = 0.05$  for  $n_1+n_2-2=14$  dof is  $|f_{\chi}|=2.145$ .

:11-1211-21

: We accept the hypothesis.

 $\chi^2$  fest

where 0 -> observed frequency.

E -> Expected frequency.

Yates correction:

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