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COMPARISON OF F. Y. B. SC. PHYSICS & ELECTRONICS STUDENT STRENGTH OF K.A.A.N.M.S. ARTS, COMMERCE & SCIENCE COLLEGE, SATANA

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Abstract

This paper Compares F.Y.B.Sc. Physics & Electronics student strength of K.A.A.N.M.S. Arts, Commerce & Science College, Satana. Data of F.Y.B.Sc. Physics & Electronics student strength were collected from department of Physics & Electronics of last six years. The data were analyzed using χ^2 (Chi-square) test. Generally,students offering Physics also offer Electronics but the result is surprisingly different.

Keywords: *-Observed frequency, Expected frequency,χ^2 (Chi-square) test, Level of significance, Degrees of freedom.*

Introduction: - Students offer various subjects so they have to deal with idle time. If optional subjects reduced the idle time will be reduced. So I have taken up this problem "Can Electronics is made compulsory for students offering Physics?" Thus we test the null hypothesis "Students who offer Physics also offer Electronics."If Electronics made compulsory then it will reduce idle time for students which will be used for extra activities.

Collection of data:- Data were collected, of last six years regarding students who chosen Physics & Electronics, from department of Physics & Electronics of K.A.A.N.M.S. Arts, Commerce & Science College, Satana which was as follows:-

Academic Year	**Number of students chosen**		**Row Total**
	Electronics	**Other subject**	
2011-12	26	25	51
2012-13	48	33	81
2013-14	47	7	54
2014-15	49	14	63
2015-16	52	20	72
2016-17	57	19	76
Column Total	279	118	**397 (Grand Total)**

Hypothesis testing:-

Null hypothesis (H_0):Students who offer Physics also offer Electronics.

Alternate hypothesis (H_1): Students who offer Physics may not offer Electronics.

Expected frequency E_{ij} ,was calculated using following formula

$$\mathbf{E_{ij} = \frac{Row\ total \times Column\ total}{Grand\ total}}, \qquad \mathbf{1 \le i \le 5,\ 1 \le j \le 2}\ [1]$$

O_{ij} **(Observed Frequency)**	E_{ij} **(Expected Frequency)**	$\frac{(O_{ij} - E_{ij})^2}{E_{ij}}$
26	36	2.7778
48	57	1.4211
47	38	2.1316
49	44	0.5682
52	51	0.0196
57	53	0.3019
25	15	6.6667
33	24	3.375
7	16	5.0625
14	19	1.3158
20	21	0.0476
19	23	0.6957
Total 397	397	24.3835

where value of E_{ij} &$\frac{(O_{ij} - E_{ij})^2}{E_{ij}}$is rounded off.

Then χ^2 is calculated using following formula $\boldsymbol{\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}}$ [1]

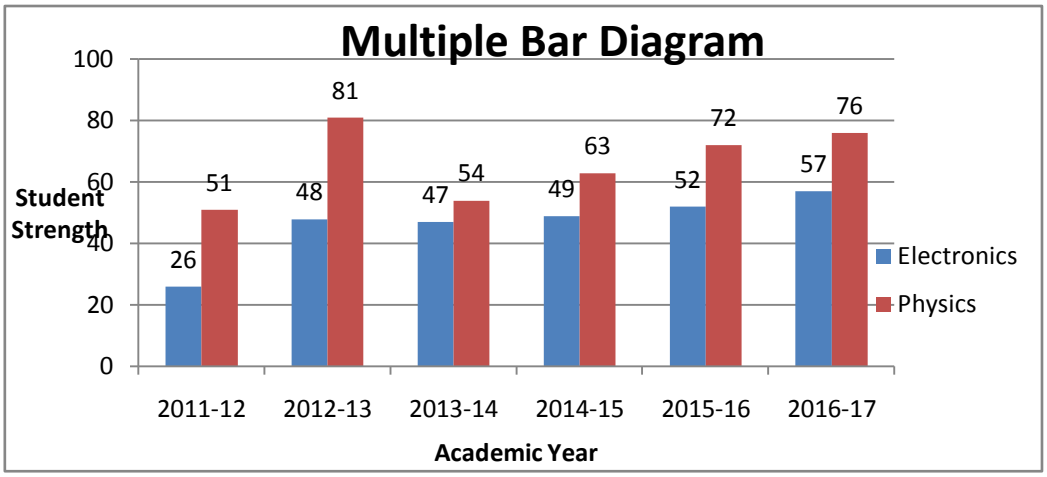
$$\therefore \boldsymbol{\chi^2 = 24.3835}$$

And **table value of χ^2** at 1% level of significance & 5 degrees of freedom = **15.086**

Conclusion:-

As 24.3835 > 15.086, reject the null hypothesis at 1% level of significance that is students offered Physics may not offer Electronics, generally which is not the case.

Discussion:-



After observing above multiple bar diagram, there is a change in trend from the academic year 2012-13 to 2013-14. In 2012-13, 59.25% students offered Electronics while in 2013-14, 87 % students offered Electronics. After 4 to 5 years if the same study is repeated then result might be different.

Reference:-

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