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14 (EDN-3) 3016

2023

**EDUCATION**

Paper : EDN-3016

**(Educational Statistics)**

Full Marks : 80

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. What is a normal distribution curve ?  
Discuss the properties of normal distribution  
with diagram. 6+10=16

**Or**

Define non-normal distribution with its  
types. Discuss the factors responsible for  
having non-normal distribution. 10+6=16

2. (a) Differentiate between one-tailed and  
two-tailed tests with example.
- (b) Given a distribution with N of 80, Mean  
of 40 and S.D. of 4.  
What percentages of score will be  
between the scores 45 and 50 ?  
10+6=16

*Contd.*

Or

- (c) What is meant by null hypothesis ?
- (d) Following are the sets of score recorded for the achievement test of boys and girls :

Gender	Mean	S.D.	N
Boys	60	6	100
Girls	55	4	98

Is the difference between *two* groups are significant at .05 and .01 levels ?

8+8=16

3. (a) What is meant by analysis of variances ? Mention the assumption of analysis of variances.
- (b) The following data gives the information of the 12 students regarding the error scores in a psychological list of *three* groups of students :

Section A	25	22	24	21
Section B	20	17	16	19
Section C	24	16	30	20

Is there any significant difference in the *three* groups of students in the error scores ?

6+10=16

Or

- (c) Define chi-square test. Discuss the characteristics of chi-square test.
- (d) A dice was thrown 90 times with the following results :

Face	1	2	3	4	5	6
Frequency	10	12	16	14	18	20

Are these data consistent with the hypothesis that the dice is unbiased ?  
 $4+4+8=16$

4. (a) Define regression and prediction equation.

The following are the Mean and S.D. of the scores in the subject Education (X) and Psychology (Y) :

Scores in Edu (X)      Scores in Psy (Y)

$$M_x = 70$$

$$M_y = 80$$

$$f_x = 4$$

$$f_y = 6$$

$$r = 0.50$$

Determine the regression equation.

$$6+10=16$$

**Or**

- (b) What is meant by 't' distribution ?
- (c) The mean achievement score of a sample of 500 school students is found to be 65 and S.D. of 25. Do you think that the mean is trustworthy to make an estimate of the whole population ?
- $6+10=16$

5. Write on **any two** from the following :

$8 \times 2 = 16$

- (a) Standard error of mean
- (b) Type 1 and Type 2 error
- (c) Z score
- (d) Population and sample
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