Note: This is Model Paper for guidance of students & teachers.

Model Paper Statistics Objective

Intermediate Part – II (12th Class) Examination Session 2012-2014 and onward

Total marks: 17 Paper Code_____ Time Allowed: 20 minutes

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct: fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Q.1	Question	A	B	C	D
1	The shape of the normal curve is	j-shaped	U-Shaped	Bell-Shaped	F-shaped
2	In normal distribution P(X>u) is always	1	0	1/2	-1
3	Area under standard normal curve is	1	0	100	1/2
4	Mean of sample means is denoted by	μ	σ	$\mu_{\bar{x}}$	$\sigma_{\bar{x}}$
5	Standard error of sample mean is equal to	σ	μ	$\frac{\sigma}{n}$	S
6	Sampling frame is list of element of	Sample	Population	Subset	Sub sample
7	t-distribution is also symmetric like	Normal distribution	Binomial	F-distribution	X2 – distribution
8	α is called	Level of confidence	Level of Significance	Probability of type II error	Level of acceptance
9	Probability of committing type- 1 error is denoted by	α	β	1-α	1-β
10	In the regression line Y=a+bx	$\Sigma x=\Sigma y$	$\Sigma x=\Sigma \hat{y}$	$\Sigma y=\Sigma \hat{y}$	X=Y
11	Dependent variable is also called	Regressor	Regressand	Continuous	Qualitative variable
12	If a constant is added to or subtracted from the values of variable, the value of 'r' is	Positive	Negative	Different	Same
13	For a 3x3 contingency table the number of cells in the table are	9	6	4	3
14	Chi-square curve ranges from	0 to ∞	0 to 1	0 to n	–∞ to +∞
15	When the production of a thing is maximum, this stage is called	Prosperity	Recovery	Recession	Depression
16	The straight line fitted to the time series when the movements in the time series are	Non linear	Linear	Irregular	Upward
17	What connects one computer to another	Program	Networking	Floppy disks	Compiler

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Model Paper Statistics Subjective

Intermediate Part – II (12th Class) Examination Session 2012-2014 and onward

Time: 3:10 Hours **Marks= 83**

Section- I

Q. No:-2

Write short answer of any eight questions of the following **(8x2=16)**

(i) Define normal distribution

(ii) Write down 3 properties of normal distribution

(iii) What is standard normal variate

(iv) Define the point of inflection

(v) In a normal distribution $\mu_4 = 243$ Find Parameter σ

(vi) Define an estimator

(vii) Define degree of freedom

(viii) Define null Hypothesis

(ix) What is the formula of Z for large sample size & σ is known

(x) Given

$\bar{X} = 120 \ \mu_o = 100$ s =34.75 and n = 25 Find t

(xi) Differentiate between hardware and software

(xii) What is date processing

Q. No. 3

Write short answer of any eight question of the following **(8x2=16)**

(i) Differentiate between regression and correlation

(ii) What in meant by scatter diagram

(iii) Write down the formula of correlation coefficient

(iv) Write down the proportion of r

(v) $\bar{X} = 1, \bar{y} = 8 \ and \ b = 2 \ Find \ the \ value \ of \ a$

(vi) If $b_{yx} = -1.6$ and $b_{xy} = 0.4$ Find the value of r

(vii) Define Probability sampling

(viii) Explain the term sampling frame

(ix) Write down the properties of difference between two means.

(x) Define the Standard error

(xi) $Given \ \mu = 6 \ n = 2 \ and \ \sigma^2 = 10.8 \ Find \ E\ (S^2)$

(xii) $Given \ \ n = 36 \ and \ \sigma \ = 6 \ Find \ \sigma^2 \bar{x}$

Q No. 4

Write short answer of any six questions of the following **(6x2=12)**

(i) Define a time series

(ii) Explain the term secular Trend

(iii) What is meant by business cycles

(iv) Differentiate between signal and noise

(v) $Given \sum (y - \hat{y}) = 0.5, -0.5, 1, -1, 0.5, -0.5, Find \ sum \ of \ squre \ of \ residual$

(vi) $Given \sum X = 0, \sum Y = 27.1, \sum XY = 29.5, \sum X^2 = 330 \ Determine \ the \ value \ of \ b$

(vii) What is meant by attribute

(viii) Write down the formula of coefficient of association

(ix) $Given \sum d^2 = 99 \; and \; n = 10 \; Find \; the \; Coefficient \; of \; rank \; Correlation$

SECTION – II

Note:- Attempt any Three question from this section **(8x3=24)**

Q No. 5

(a) Let "X" is normally distributed with $\mu = 100 \; and \; \sigma^2 = 225$

Find area when x fall
(i) between 115 and 134
(ii) Above 122

(b) In a normal distribution M.D = 3.9895 then find standard deviation, second and fourth moment of the normal distribution

Q No. 6

(a) Take all possible sample of size 3 without replacement from the population 2, 6, 8, 14. From sampling distribution of mean and find its mean and variance, verify that

$$\mu_{\bar{x}=}\mu \qquad \sigma^2_{\bar{x}} = \frac{\sigma^2}{n}\left(\frac{N-n}{N-1}\right)$$

(b) If mean and variance of a population are 5 and 2.15 respectively. What would be the standard error of mean of sample of size 4 are drawn with replacement

Q. No. 7

(a) Find 90% confidence interval for the mean of a normal distribution of σ= 2 and a sample of size 8 gave the value 9, 14, 10, 12, 7, 13, 11, 12

(b) A random sample of 25 value gives the average of 83 this sample be regarded as drawn from the normal population with mean from the normal population with mean 80 and standard deviation 7 at 5% level of significance.

Q. No. 8

(a) Compute the correlation efficient of the following data

X:	21	22	23	24	25
Y:	25	24	23	22	26

(b) Fit a regression line $\hat{Y} = a + bx$ to the given data

X:	25	30	40	50	65
Y:	6	5	4	8	7

Q. No.9

(a) Find coefficient of association

	A1	**A2**
B1	80	40
B2	20	60

(b)

Fit a liner Trend to the following information for the year 1986 to 1992 (both inclusive)

$$\sum X = 0, \sum Y = 245, \sum X^2 = 28 \; \sum XY = 66$$

Also compute the trend values.

SECTION III

Note Attempt any 3 Questions. **(5x3=15)**

Q. No. 10 (i)

Draw all Possible sample of size 3 without replacement form the population 3, 4, 5, 7. Calculate proportion of odd numbers in each sample and verify that

i. $E(\hat{P}) = P$

ii. $\sigma^2\hat{p} = \frac{pq}{n}(\frac{N-n}{N-1})$

(ii)

It is claimed that a new diet will seduce a passions weight by 5 kg on the average in a Period of 8 weeks. The weights of 4 men who were given this diet were recorded before and after 8 weeks period.

Men	1	2	3	4
Weight Before	63	64	66	73
Weight After	64	58	62	66

Compute 90% Confidence interval from the mean difference in the weight. Assume the distribution of weight to be approximately normal.

(iii)

Determine the regression equation to the following data & show that $\sum(Y - \hat{Y}) = 0$

X	5	10	15	20	25
Y	25	20	15	10	5

(iv)

Find value of chi square X^2 to test the irradiation between attributes

	A1	A2
B1	500	160
B2	100	400

(v)

Compute four quarter moving average of the data for 2000 to 2001

	Quarters			
Year	I	II	III	IV
2000	20	26	33	45
2001	24	30	36	48