FBD-12-18

Roll No. : _____

Objective
Paper Code
8181

Intermediate Part Second (New Scheme)
STATISTICS (Objective)
Time: 20 Minutes   Marks: 17

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Q.No.1
You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.

S.#	Questions	A	B	C	D
1	The parameters of normal distribution are:	π and σ	π and p	μ and σ^2	π and μ
2	In a normal distribution $\beta_2 =$:	0	3	1	.6745
3	In a normal distribution $\mu \pm 2\sigma$ has area:	.6827	.9545	.9973	.6745
4	Numerical value calculated from population is called:	Parameter	Statistic	Sampling unit	Sampling design
5	The complete list of all the sampling units is called:	Sampling frame	Sample design	Target population	Sampled population
6	Another name of probability sampling is:	Non-random sampling	Judgement sampling	Purposive sampling	Random sampling
7	By decreasing the level of confidence, the precision of confidence interval is:	Decreased	Increased	Equal	Unchanged
8	Which is a simple hypothesis?	$\mu < 15$	$\mu > 15$	$\mu = 15$	$\mu \neq 15$
9	Accepting H_0 if H_0 is false is:	No error	Type-1 error	Type-II error	α
10	In regression dependent variable is assumed to be:	Fixed	Random	Constant	Zero
11	If r > 0 and $b_{yx} > 0$ then b_{xy} is:	< 0	> 0	0	≤ 0
12	In correlation both variables are:	Random	Non-random	Constant	Fixed
13	If $AB < \dfrac{(A)(B)}{n}$ the association between A and B is:	Negative	Positive	Zero	Symmetrical
14	The coefficient of association lies between:	−1 and +1	0 and 1	−1 and 0	−α and +α
15	Depression in business is:	Secular trend	Cyclical	Seasonal	Random
16	The graph of time series is called:	Histogram	Ogive	Historigram	Scatter diagram
17	Compact disk is an example of:	Primary storage	Secondary storage	Main storage	All of these

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FBD-12-18

STATISTICS (Subjective)

Time: 02:40 Hours   Marks: 68

SECTION – I

2. Write short answers to any EIGHT parts.   16

(i)   What is normal probability density function?

(ii)   What is the value of mean deviation (MD) and quartile deviation (QD) for standard normal distribution?

(iii)   What is the mean and variance of standard normal variable?

(iv)   What is the range of normal distribution?

(v)   In a normal distribution, what are the values of μ_2 and μ_3.

(vi)   What is estimator?

(vii)   If x = 6 , n = 50, find P.

(viii) What is null hypothesis?

(ix)   What is composite hypothesis?

(x)   Define critical region.

(xi)   Describe any two output devices.

(xii)   Define hardware.

3. Write short answers to any EIGHT parts.   16

(i)   Define sample.

(ii)   Define sampling frame.

(iii)   Define sampling technique.

(iv)   Describe simple random sampling without replacement.

(v)   Define sample size.

(vi)   Given N = 400 , n = 100 and $\sigma_{\bar{x}}^2 = 20$, find σ^2 if sampling is done without replacement.

(vii)   Define slope of regression line.

(viii) Define the term residual.

(ix)   Given $\sum (x - \bar{x})(y - \bar{y}) = 100$, n = 10, $S_x^2 = 10$, find b_{yx}.

(x)   Define correlation.

(xi)   Describe the range of correlation coefficient.

(xii)   Describe properties of correlation coefficient (any two).

4. Write short answers to any SIX parts.   12

(i)   Define association of attributes.

(ii)   Differentiate between class and class frequency.

(iii)   Given (AB) = 95 , (Aβ) = 55 , (αB) = 85 , (αβ) = 45 , find the coefficient of association.

(iv)   What is the relation between two attributes if Q = +1 ?

(v)   Write the formula for Pearson's coefficient of mean square contingency.

(vi)   Differentiate between signal and noise in a time series.

(vii)   If $\hat{Y} = 10 - 2x$, find the trend values for x = 0, 1, 2, 3, 4, 6

(viii) Suggest any three methods of obtaining secular trend.

(ix)   What are different components of time series?

| SECTION – II   Attempt any THREE questions. Each question carries 08 marks. |

5. (a) If 'x' is N (100 , 64), find (i) P (90 ≤ x ≤ 115)   (ii) P (x ≥ 110)   04

(b) In a normal distribution, μ = 20 and σ = 5. Find two points containing middle 95% area between them.   04

6. (a) A population consists of the elements 1, 3, 5, 7, 9. Draw all possible samples of size 2 without replacement and find the means of all possible samples.   04

(b) Make sampling distribution of sample means of part (a) and find mean and variance of sampling distribution of means.   04

7. (a) Given that $n = 8$, $\bar{X} = 100$ and $\Sigma(X - \bar{X})^2 = 4600$

   Assume that above information is taken from normal population. Find 95% confidence interval for μ. 04

   (b) Given $n_1 = 50$, $\bar{x}_1 = 87$, $s_1 = 6$

   $n_2 = 50$, $\bar{x}_2 = 78$, $s_2 = 5$

   Test the hypothesis $H_0 : \mu_1 - \mu_2 \geq 12$ against the alternative $H_1 : \mu_1 - \mu_2 < 12$ at $\alpha = 5\%$ (Level of significance). 04

8. (a) Compute the regression coefficients in each of the following cases:

   $n = 7$, $\Sigma(x - \bar{x})(y - \bar{y}) = 148$, $S_x = 7.933$, $S_y = 16.627$ 04

   (b) For a given set of data, we have $r = 0.5$, $\Sigma(x - \bar{x})(y - \bar{y}) = 120$, $S_y = 8$, $\Sigma(x - \bar{x})^2 = 90$.

   Find the number of pairs of values. 04

9. (a) Test the independence between gender and liking for fish use $\alpha = 0.05$ 04

	Males	Females
Like fish	80	80
Do not like fish	20	20

   (b) Compute trend values by semi-average method for the following data: 04

Years	2001	2002	2003	2004	2005	2006	2007
Values	847	1024	1186	1405	1664	1958	2258