F.Y.B.A Sem I Regular
3/12/18
10.30 - 1.30 pm
page 2

45

Paper / Subject Code: 81064 / Statistics :Paper I

DURATION: 3 HOURS **MARKS**: 100

N.B.: 1 All questions are compulsory.
2 Use of non-programmable scientific calculator is allowed.

Q.1	**(a)**	**Correct the following if necessary.**	**10**
	(i)	Monthly salary is an attribute.	**02**
	(ii)	For a Symmetric distribution $\beta_1 = 3$.	**02**
	(iii)	$AM \geq GM \geq HM$	**02**
	(iv)	Median can be located by Histogram	**02**
	(v)	Quartile deviation = $Q_1 - Q_3$.	**02**
	(b)	**Answer in one sentence.**	**10**
	(i)	Define secondary data.	**02**
	(ii)	For a frequency distribution if Confidence intervals are 10-19, 20-29, 30-39 then how will you convert them to exclusive type class interval?	**02**
	(iii)	Construct one example of data whose mean is 7 and variance is zero.	**02**
	(iv)	Define ultimate class frequency.	**02**
	(v)	Define skewness.	**02**
Q.2		**Attempt any Two**	**20**
	(a)	Explain different scales of measurement in detail.	**10**
	(b)	Define a questionnaire. What are the characteristics of ideal questionnaire?	**10**
	(c)	(i) The students of a college are classified according to gender, three streams arts, science and commerce, for three years 2016, 2017 and 2018. Draft a blank table that would be suitable to show above information.	**05**
		(ii) For two attributes A and B we have (AB) =200, (α) =150, ($\alpha\beta$)=70, N=400; find missing frequencies. Also compute Yule's coefficient of association	**05**
	(d)	(i) What is mean by association of two attributes? How is it measured?	**04**
		(ii) Explain following with example: (p) positive, negative and contrary class frequencies, (q) Ultimate class frequencies.	**06**
Q.3		**Attempt any Two**	**20**
	(a)	(i) Derive relation between Arithmetic mean, Geometric mean and Harmonic mean for two positive variables.	**05**
		(ii) What are the advantages and disadvantages of graphical representation?	**05**
	(b)	(i) Discuss the situation where geometric mean and harmonic mean is better than arithmetic mean.	**05**
		(ii) State merits geometric mean and harmonic mean.	**05**
	(c)	(i) Find the mean if we have n numbers which are in the arithmetic progression.	**05**

(ii) Prepare an ungrouped frequency distribution for following data: 05
10, 9, 8, 10, 9, 9, 12, 8, 10, 10, 10, 8, 11, 13, 9, 13, 11, 10, 11, 12, 8, 12, 10, 8, 12, 9.

(d) Following data gives the distribution of daily income. 10

Daily income	100-200	200-300	300-400	400-500	500-600	600-700
No. of persons	7	10	17	20	16	9

Find mean, median and mode for above data.

Q.4 **Attempt any Two** 20

(a) The first four moments of a distribution about the value 5 of the variable are 2, 20, 40 and 50. Compute the mean, variance μ_3, μ_4, β_1,β_2. 10

(b) (p) If the first quartile is 110 and the semi-inter quartile range is 30, what is the third quartile? 05

(q) State the requisites of a good measure of dispersion. How is it measured? 05

(c) (i) The following data represents the goal scored by two teams in football matches. 04

No. of goal scored	0	1	2	3	4
Team A	12	17	11	17	14
Team B	9	19	19	18	7

(p) Which team scored more goals on an average?

(q) Which team is more consistent? Why?

(ii) Explain all relative measures of dispersion in brief. Write a situation under which relative measures of dispersion are used. 06

(d) Derive expression for first four central moments in terms of raw moments about origin. 10

Q.5 **Attempt any Four** 20

(a) Check for the type of association for the following data: 05
$(AB)=200$, $(\alpha\beta)=70$, $(\beta)=50$, $N=400$

(b) What is primary data? How is it different from secondary data? 05

(c) Write short note on: Exclusive and inclusive class intervals. 05

(d) State conditions for consistency of three attributes. 05

(e) Find geometric mean for the following data: 05

Class	50-60	60-70	70-80	80-90	90-100
frequency	12	14	17	13	11

(f) Explain procedure for finding deciles and percentiles for grouped data. 05

(g) State empirical relationship between mean, median and mode. 05
State any two merits and any two demerits of median.
