

F.Y. B. SC. (COMPUTER SCIENCE) SEM – I (2014 COURSE) :
SUMMER - 2018

SUBJECT : COMPUTER ORIENTED STATISTICAL TECHNIQUES – I

Day : **Saturday**
 Date : **28/04/2018**

S-2018-0834

Time : **12.00 NOON TO 02.00 PM**
 Max. Marks : 40

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Use of logarithmic tables, statistical tables, pocket calculator is **ALLOWED**.

Q.1 Attempt **ANY TWO** of the following: **[10]**

- a) Explain the procedure to draw cumulative frequency curve with illustration.
- b) Draw a histogram for the following frequency distribution of persons according to their heights in cm. Find mode graphically.

Height (in cm)	150-155	155-160	160-165	165-170	170-175
No. of persons	2	17	29	21	1

- c) Explain the term Kurtosis. Discuss different type of Kurtosis. State the measure of Kurtosis.

Q.2 Attempt **ANY TWO** of the following: **[10]**

- a) What do you mean by measure of central tendency? State different criteria for good measure of central tendency.
- b) Find median rainfall for the following frequency distribution of rainfall in millimeter of 50 days.

Rainfall (in mm)	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of days	10	17	9	11	4

- c) The following data pertain to two workers doing the same job in a factory.

	Worker A	Worker B
Mean time of completing the job (in minutes)	40	42
Standard deviation (in minutes)	8	6

Find:

- i) combine mean of two workers.
- ii) combine variance of two workers.

Q.3 Attempt **ANY TWO** of the following: **[10]**

- a) Define raw and central moments. State the formula for central moments in terms of raw moments upto order three.
- b) If $\mu'_1 = 1$, $\mu'_2 = 4$, $\mu'_3 = 10$, $\mu'_4 = 46$, compute pearsonian's coefficient of skewness (γ_1). Comment on nature of data.
- c) Given that:

$$r = 0.4, \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y}) = 108, \sigma_x = 3 \text{ and } \sum_{i=1}^n (x_i - \bar{x})^2 = 900.$$

Find number of pairs of observations n.

Q.4 Attempt **ANY FIVE** of the following: **[10]**

- a) Define attribute. Give one real life example.
- b) A variable take values 1, 4, 9, ----, n^2 . Find arithmetic mean.
- c) Find variance for the following observations:
6, 4, 5, 3, 12, 10.
- d) State the formula for Bowley's coefficient of skewness.
- e) If $Y = 2X - 3$ is a regression line of Y on X then find b_{yx} .
- f) If $\bar{x} = 5$, $\bar{y} = 3$ and $b_{yx} = 0.6$, obtain the regression estimate of y for $x = 3$.
- g) With usual notations show that $b_{yx} b_{xy} = r^2$.

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