

B.C.A. (2010 COURSE SEM- II : SUMMER - 2018)
SUBJECT : MATHEMATICS – II (NUMERICAL & STATISTICAL METHODS)

Day : **Monday**
 Date : **07/05/2018**

Time : **10.00 AM TO 01.00 PM**
 Max. Marks : 70

S-2018-1727

N.B.

- 1) **Q.1 is COMPULSORY.**
- 2) Attempt **ANY FOUR** questions from Q.2 to Q.7.
- 3) Figures to the right indicate **FULL** marks.
- 4) Use of non-programmable **CALCULATOR** is allowed.

Q.1 “Statistics is a science of management”. Justify **[14]**

OR

Discuss importance of tabulation with suitable example.

Q.2 Two brands of tyres are tested the results given in the table. Draw histogram **[14]**
 for each frequency distribution:

Life in thousands of miles	Number of Tyres	
	Brand X	Brand Y
20 – 25	1	0
25 – 27.5	7	4
27.5 – 30	15	20
30 – 31	10	32
31 – 32	15	30
32 – 33	17	12
33 – 34	13	2
34 – 35	9	0
35 – 37.5	8	0
37.5 – 40	2	0
40 – 45	3	0
Total	100	100

Q.3 Write steps involving in (Algorithm) finding roots of the equation by **[14]**
 Newton- Raphson Method. Find root of the equation $f(x) = x^2 - 3x + 2$ in the
 vicinity of $x = 0$.

Q.4 Find Median and Arithmetic mean for data given below: **[14]**

Defective bulbs in box	1	2	3	4	5	6	7	8	9
No. of boxes examined	4	13	6	7	5	3	2	1	0

Q.5 In two sets of variables x and y with 50 observations each ,the following data **[14]**
 were observed:

$$\bar{x} = 10, \quad \text{S.D of } x = 3, \quad \bar{y} = 6, \quad \text{S.D of } y = 2$$

Coefficient of correlation between x and y is 0.3. However, on subsequent
 verification it was found that one pair ($X = 10, Y = 6$) was inaccurate and
 hence weeded out with the remaining 49 pairs of values. How is the original
 value of correlation coefficient affected?

Q.6 a) What are regression lines? Why it is necessary to consider two lines of **[07]**
 regressions?

b) If two lines of regression are: $4x - 5y + 30 = 0, \quad 20x - 9y - 107 = 0$ **[07]**
 Which of these is the line of regression of x on y and y on x ? Find coefficient
 of regression and σ_y when $\sigma_x = 3$.

Q.7 Write short notes on **ANY TWO** of the following: **[14]**

- | | |
|--|---|
| a) Types of Graphs
b) Frequency Polygon | c) Primary and Secondary Data
d) Numerical Error |
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