Reg. No. | | | | | | | | | |

BBMBMC 257

Credit Based Fourth Semester B.B.M. Degree Examination, May/June 2016 (2012 Scheme) BUSINESS STATISTICS

Time : 3 Hours Max. Marks : 80

Instructions : *1) Only **Simple** Calculators are allowed.*
*2) Log tables are provided **if** necessary.*

SECTION – A

(One mark each) **(1×10=10)**

1. Answer **any ten** questions.
   a) What are inclusive and exclusive class intervals ?
   b) Write any two published sources of secondary data.
   c) What do you mean by correlation ?
   d) Find the median of 46, 83, 12, 04, 15, 30, 62.
   e) Calculate the harmonic mean of 2, 4 and 8,
   f) The sum of upper and lower quartile is 76. Their difference is 14 calculate coefficient of quartile deviation.
   g) Write any one property of coefficient of correlation.
   h) If $4x + 3y - 4 = 0$ is the regression equation of x on y find the regression coefficient b_{xy}.
   i) Which index number is used for the evaluation of purchasing power of money ?
   j) In stem and leaf plot which digit of the given number forms leaf.
   k) Give an example for reasonal variation.
   l) Define optimal solution to a L.P.P.

SECTION – B

(Five marks each) **(5×5=25)**

Answer **any five** questions.

2. What is primary data ? Explain different sources of primary data.

3. Represent the following data by means of Histogram and calculate the mode.

Weekly Wages	Number of Employees
1000 – 1500	7
1500 – 2000	19
2000 – 2500	27

P.T.O.

2500 – 3000	15
3000 – 4000	12
4000 – 6000	12
6000 – 8000	8

4. Find the Geometric mean of the following distribution.

Marks :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of students :	5	7	15	25	8

5. For the following data find the quartile deviation and coefficient of quartile deviation.

x :	2500	3000	3250	3500	3750	4000	6000
f :	20	14	6	26	9	13	4

6. Calculate Spearman's coefficient of rank correlation from the following :

x :	43	96	74	38	35	43	22	56	35	80
y :	30	94	84	13	30	18	30	41	48	95

7. Construct cost of living index number using the following data.

Item	**Price**		**Base year**
	Base year	**current year**	**expenditure**
Food	2000	2800	6000
Fuel	400	500	800
Cloth	100	120	400
House rent	500	600	6000
Misellaneous	1000	1200	4000

8. Compute trend values by finding three yearly moving averages.

Year :	2008	2009	2010	2011	2012	2013	2014	2015
Value :	29	27	26	26	24	25	22	24

SECTION – C

(15 marks each) **(15×3=45)**

Answer **any three** :

9. a) Out of a total number of 1807 women who were interviewed for employment in a textile factory of Mumbai, 512 were from textile areas and the rest from the non-textile areas amongst the married women who belong to textile areas, 247 were experienced and 73 inexperienced, while for non-textile areas, the corresponding figures were 49 and 520. The total number of inexperienced women was 1341 of whom 111 resided in textile areas. Of the total number of women 918 were unmarried and of these the number of experienced women in the textile areas and non textile areas was 154 and 16 respectively. Tabulate. **5**

b) Find the median of the following : 5

C.I. :	3.0 – 3.9	4.0 – 4.9	5.0 – 5.9	6.0 – 6.9	7.0 – 7.9	8.0 – 8.9
f :	5	13	18	14	7	3

c) Find the harmonic mean of the following : 5

Class interval :	80 – 82	82 – 84	84 – 86	86 – 88
Frequency :	5	7	3	2

10. a) For the following distribution calculate, mean, standard deviation and coefficient of variation.

C.I.	f
25 – 34	4
35 – 44	20
45 – 54	38
55 – 64	24
65 – 74	16
75 – 84	4

10

b) Represent the following data by

a) stem plot

b) by box plot

x : 84, 86, 79, 63, 84, 89, 96, 99, 79, 82, 69, 66, 71, 70, 98, 86, 91, 90, 93, 85, 68, 76, 83, 81

y : 75, 74, 70, 72, 68, 78, 85, 82, 79, 69, 71, 73, 70, 72, 74, 77 5

11. a) Calculate Karl Pearsons coefficient of correlation.

	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
15 – 25	5	9	3	–	–
25 – 35	–	10	25	2	–
35 – 45	–	1	12	2	–
45 – 55	–	–	4	16	5
55 – 65	–	–	–	4	2

10

b) The following table given the ages and blood pressure of 10 women

Age (x) :	56	42	36	47	49	42	60	72	63	55
B.P. (y) :	147	125	118	128	145	140	155	160	149	150

Estimate the blood pressure of a women whose age is 45 years. 5

12. a) Calculate Laspyre's and Paasche's index numbers

Item	Price (₹ per quintal)		Quantity	
	Base year	Current year	Base year	Current year
Rice	400	850	100	120
Wheat	320	690	20	60
Sugar	720	1600	10	10
Dhal	720	2100	10	20

5

b) Fit a straight line trend by the method of least squares.

Year:	2008	2009	2010	2011	2012	2013	2014	2015
Value:	40	43	42	39	40	37	35	39

Estimate the production for the year 2016. 5

c) Solve the following L.P.P. graphically

Maximize $Z = 400x + 1000y$

Subject to $12x + 6y \leq 6000$

$4x + 10y \leq 4000$

$2x + 3y \leq 1800$

and $x \geq 0, y \geq 0$. 5