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

BBMBMC 257

Credit Based Fourth Semester B.B.M. Degree Examination, November/December 2015
(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. Answer **any ten** questions. **(1×10=10)**

a) Write a limitation of statistics.

b) What is primary data ?

c) Which graph is used to find median ?

d) Can Mean be a negative value ?

e) In a distribution the highest and lowest values are 8 and –2 respectively. Find the range.

f) Around which average, mean deviation is least ?

g) If two variables are perfectly correlated what is the value of 'r' ?

h) If regression equation x on y is $2x + 3y - 8 = 0$ find the regression coefficient bxy.

i) In stem and leaf plot which digit of the given number forms leaf ?

j) Which index number is used for fixation of salary and grant of allowance to employees ?

k) Write the normal equation used in fitting a straight line trend.

l) Define decision variables in L.P.P.

P.T.O.

SECTION – B

(5 marks each)

Answer **any five** questions : **(5×5=25)**

2. Mention five limitations of statistics.

3. For the following distribution of wage of workers draw histogram and find mode of the distribution

Weekly wage	**no. of workers**
200 – 400	40
400 – 450	85
450 – 500	160
500 – 600	280
600 – 700	110
700 – 800	60
800 – 900	10

4. Find the geometric mean and harmonic mean of the following values

   12.4, 12.6, 12.9, 12.1 and 12.3.

5. Calculate Spearman's rank correlation

x :	15	20	28	12	40	60	20	80
y :	40	30	50	30	20	10	30	60

6. Estimate most likely value of y when x = 40

x :	12	18	24	30	36	42	48
y :	5.3	5.7	6.3	7.2	8.0	8.7	9.9

7. Find 2-yearly centered moving averages to the following data

Year :	2005	2006	2007	2008	2009	2010	2011
Production (in tons) :	42	37	28	33	34	33	30

8. Compute consumer price index number using the following data.

Item	Base year quantity	Price (Rs.) Base year	Current year
Food	20	100	230
Clothing	4	200	450
Fuel	10	20	50
Rent	1	4000	6000
Misc	10	1000	2000

SECTION – C
(15 marks each)

Answer **any three** questions. **(15×3=45)**

9. a) Find mean, median, mode of the following distribution. **10**

Marks less than	10	20	30	40	50	60	70	80	90	100
No. of Students	5	13	21	40	63	80	88	94	96	100

b) Draft a blank table for the presentation of data in a psychologic study regarding I.Q. of children classifies according to intelligence (below average, average, above average), age (below 10, 10 and above) and religion (Hindu, Muslim, Christian). **5**

10. a) The following is the distribution of daily wages of workers of two factories

i) In which factory is average wage high ?

ii) In which factory is wage variation more ? **10**

Wages (Rs.)	No. of Workers Factory A	Factory B
400 – 600	4	10
600 – 800	18	20
800 – 1000	25	42
1000 – 1200	2	18
1200 – 1400	1	10

b) Represent the following data regarding number of students present on different days by stem and leaf plot and also by box and whisker plot.

Number of students present : 84, 89, 74, 63, 76, 88, 83, 90, 79, 82, 74, 70, 58, 65, 65, 73, 81, 86, 85, 88, 68, 79, 81, 74, 72. **5**

11. a) Calculate Karl Pearson's coefficient of correlation. 10

x \ y	115	120	125	130
10	–	–	6	11
20	–	2	4	10
30	–	3	1	5
40	3	2	3	1
50	10	4	5	–

b) In a bivariate data, $\sum x = 10, \sum y = 210, \sum x^2 = 14, \sum y^2 = 5340, \sum xy = 180$ and $n = 10$. Estimate the value of x when $y = 15$. 5

12. a) Calculate Fisher's index number from the following data. 5

Item	Base Year		Current Year	
	Price	Total value	Price	Total value
A	50	100	60	180
B	40	120	40	200
C	100	100	120	120
D	20	80	25	100

b) Fit an equation of the type $y = a + bx$ to the following data and estimate the production in 2009. 5

Year :	2001	2002	2003	2004	2005	2006	2007
Production :	142	180	150	127	140	171	140

c) Solve the following LPP graphically 5

Maximize $z = 400x + 1000y$

s.t. $12x + 6y \leq 6000$

$4x + 10y \leq 4000$

$2x + 3y \leq 1800$

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