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BCMCMC 158

**Credit Based II Semester B.Com. Degree Examination, Nov/Dec. 2015
(2014-15 Batch Onwards)
COMMERCE
Business Statistics and Mathematics**

Time : 3 Hours

Max. Marks : 80

Instructions : 1) **Non programmable calculators only are allowed.**
2) **Working notes should be shown wherever needed.**

SECTION – A

Answer **any four** questions :

(4×4=16)

1. How to find co-efficient of rank correlation when there are ties in values ?
2. Write the properties of regression coefficients.
3. Explain the method of moving averages of obtaining trend when the period of moving average is an even number.
4. A manufacturer allows 20% trade discount and 5% cash discount and earns 20% profit on the cost price. If the cost price of the article is Rs. 9500 find its list price.
5. Every month a person deposits Rs. 1000 in his R.D. account at 5% simple interest p.a. what would be the amount at the end of 2 years 6 months ?
6. Find the equated due date of the following bills
Rs. 250 due on 10th June
Rs. 400 due on 20th July
Rs. 350 due on 9th August
Rs. 1000 due on 29th August.

SECTION – B

Answer **any four** questions :

(4×8=32)

7. Calculate Spearman's co-efficient of rank correlation for the following :

X :	80	78	75	75	68	67	60	50
Y :	12	13	14	14	14	16	15	17

P.T.O.



8. Find the regression equation y on x and estimate the stock return when market return is zero.

Market return % X	Stock return % Y
15	12
12	15
20	25
13	15
30	28

9. Compute 4 yearly moving averages for the following data :

Year:	2005	06	07	08	09	10	11	12	13	14
Value:	100	102	104	101	106	103	101	100	105	103

10. A person borrows Rs. 40,000 at 18% interest p.a. If interest is compounded quarterly, in how many years would the amount be double ?
11. At certain rate of interest compounding half yearly a sum doubles in 5 years. Find
 i) Nominal rate of interest. ii) Effective rate of interest.
12. A banker discounts a bill for a certain amount having 32 days to run before it matures. At 15% p.a. the discounted value of the bill is Rs. 995.90. What is the face value of the bill ? Also find bankers gain.

SECTION – C

Answer any two questions :

(2×16=32)

13. Calculate Karl Pearsons coefficient of correlation from the data given below. Also find coefficient of determination and interpret it.

X \ Y	27.5	32.5	37.5	42.5	47.5
0-10	3	2	-	-	-
10-20	-	5	4	-	-
20-30	-	4	7	10	-
30-40	-	-	6	3	2
40-50	-	-	-	3	1



14. The following data gives the population of a city.

Year :	2005	2006	2007	2008	2009	2010	2011	2012
Population : ('000)	80	100	110	120	140	152	164	172

- i) Fit a linear trend and find the trend values by method of least squares.
- ii) Estimate the population in the year 2014.

15. The following data gives the monthly income and expenditure on food of 10 families.

Income (Rs.) :	120	90	80	150	130	140	110	95	75	105
Expenditure (Rs.) :	40	36	40	45	40	44	45	38	50	35

- i) Find the regression equations.
- ii) Find the most likely expenditure when income is Rs. 100.
- iii) Find the most likely income when the expenditure is Rs. 60.
- iv) Find the coefficient of correlation between the income and expenditure using regression coefficients.

16. A bill of Rs. 5,000 drawn at 3 months was discounted for Rs. 4,880 on July 8. If the rate of interest was 12% p.a., on what date was the bill drawn. Also calculate TD, BD, BG and present value of the bill.
