

(6 pages)

S.No. 1336

12USTA11

(For the candidates admitted from 2012 – 2013 onwards)

B.B.A. DEGREE EXAMINATION, APRIL/MAY 2018.

Second Semester

BUSINESS MATHEMATICS AND STATISTICS – II

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. How long an investment of Rs. 5,000 will yield a simple interest of Rs. 2,500 at 8% per annum?
2. Arun bought an almirah for Rs. 1,520 and sold it at a profit of 12 ½%. Find the selling price of the almirah.
3. What do you mean by annuity table?
4. What is minima and maxima?
5. Define regression.
6. State any two limitations of scatter diagram.
7. What is rank correlation?

8. Define time series.
9. Define index numbers.
10. What is consumer price index?

PART B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) At the end of each year for 4 years, Kabil deposits Rs. 500 into an investment account. If the interest rate on the account is 10% per annum compounded yearly, determine the value of his investment at the end of the 4 years.

Or

- (b) Mohan sold two horses for Rs. 18,000 each. On one he gained 20% and on the other he lost 20%. Find his total gain or loss.

12. (a) What are the basic rules of differentiation?

Or

- (b) Find all local maxima and minima for $f(x, y) = x^2 - y^2$.

13. (a) With the following data in 6 cities calculate coefficient of correlation by Pearson's method between the density of the population and the death rate.

City	Area (in KM)	Population (in thousands)	No. of Death
A	150	30	300
B	180	90	1440
C	100	40	560
D	60	42	840
E	120	72	1224
F	80	24	312

Or

- (b) Explain the disadvantages of Spearman's rank correlation.
14. (a) Calculate trend values by the least square method from the following data.

Year	2005	2006	2007	2008	2009
Sales ('000)	70	74	80	86	90

Or

- (b) Explain the purpose of measuring trend in brief.

15. (a) The following data relate to the prices and quantities of 3 commodities in the year 2004 and 2005. Calculate index numbers under Fishers Ideal method for the year 2005 by using 2004 as a base year.

	2004		2005	
	Kilo	Rate	Kilo	Rate
Bread	10	3	8	3.25
Meat	20	15	15	20
Tea	2	25	3	23

Or

- (b) What are the important methods of measuring seasonal variations?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Find the compound interest on a loan of Rs. 6,00,000 for four years when the interest is at:

- (a) 1 8% per annum added annually
 (b) 9% half-year, added half-yearly
 (c) 1.5% per month, added monthly

17. Following table illustrates the distribution of items of production and also defective items among them, according to size groups. Find the correlation coefficient between size and defect in quantity.

Size	No. of items produced	No. of Defectives
15	400	300
16	540	324
17	680	340
18	720	360
19	800	360
20	600	340

18. Fit a straight line trend to the following data

Year	1965	1966	1967	1968	1969	1970	1971
Value of production (in crores)	672	824	967	1204	1464	1758	2057

Estimate the value of production during the year 1975.

19. For the data compute regression equation Y on X

X	146	152	158	164	170	176	182
Y	75	78	77	79	82	85	86

20. What are the methods of constructing index number? Discuss in detail.
-