

A
(21119)

Roll No.

Total Questions : 13]

[Printed Pages : 4

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B.B.A. Ist Semester Examination, Nov., 2019

BUSINESS MATHEMATICS

(BBA-102)

Time : 3 Hrs.]

[M.M. : 75

Note :- Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Type Questions) 3x5=15

Note :- Attempt all the *five* questions. Each question carries 3 marks. Very short answer is required.

1. Find Duplicate Ratio of 8 : 15.
2. If 32 is added to the 80% of a number, the result is the number itself find the number.

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Turn Over

3. The following table given the marks obtained by 10 students of B.B.A. II in Business Mathematics :

Serial No.	1	2	3	4	5	6	7	8	9	10
Marks	88	42	6	74	31	98	80	16	52	33

4. Find the simple interest on ₹ 25,000 for 146 days at the rate of 6% per annum.
5. Differentiate $\log x^2$.

Section-B

(Short Answer Type Questions) 7½x2=15

Note :- Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding **200** words.

6. Find AB if :

$$A = \begin{bmatrix} 1 & 3 & 1 \\ 4 & 0 & 2 \end{bmatrix}, B = \begin{bmatrix} 3 & -4 \\ 1 & 5 \\ -2 & 2 \end{bmatrix}$$

7. Calculate the arithmetic mean (average) of 54, 61, 93, 104, 75 and 99 by the routine method.
8. Find the number of permutations of word 'ACCOUNTS'.

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Section-C

(Long Answer Type Questions) 15×3=45

Note :- Attempt any *three* questions out of the following five questions. Each question carries 15 marks. Answer is required in detail.

9. Write short notes on any *two* of the following :

- (i) Multiplication law of matrices
- (ii) Union of sets
- (iii) Integration by substitution
- (iv) Gaussian elimination method

10. (a) $A \cup B = A \cap B$ if and only if $A = B$ prove it.

(b) Out of 1000 students who appeared for an examination, 750 failed in maths, 600 failed in accounts and 600 failed in costing, 450 failed in both maths and accounts, 400 failed in both maths and costing. The students who failed in all the three subjects were 75. Prove that the above data is not correct.

11. If $C = x^3 - 2x^2 + 4x + 15$, find average cost and marginal cost.

12. (a) Show that the sequence :

$$1, \frac{1}{4}, \frac{1}{7}, \frac{1}{10}, \dots$$

is a H.P. Also find its 10th term.

(b) Find the 9th term and the general term of the progression $\frac{1}{4}, -\frac{1}{2}, 1, -2, \dots$

13. (a) If the population of a town is 18,000 in beginning of the year 1996, find what will be population at the end of 1999 at the rate of increase of 6% p.a. ?

(b) A shopkeeper borrowed some money from a nationalised bank under SSI scheme to expand his business at the rate of 10.5% p.a., S.I after 3 years he paid back ₹ 9,862. So to the bank and settled his account. What sum did he borrow from the bank ?