## FD-973

BBA 1st Semester
Examination, Dec.-Jan., 2021-22

Paper - III
Business Mathematics

Time : Three Hours] | [Maximum Marks $: 90$ |
| ---: |
| $[$ Minimum Pass Marks $: 32$ |

Note : Answer all questions. All questions carry equal marks.

## Unit-I

1. Explain the main characteristics of a determinant.

OR
Find the value of $A B$. Is $A B=B A$ if

$$
A=\left[\begin{array}{lll}
1 & 2 & 3 \\
4 & 5 & 6
\end{array}\right] \text { and } B=\left[\begin{array}{ccc}
2 & 3 & 1 \\
5 & 4 & 3 \\
2 & 1 & 1
\end{array}\right] .
$$

## ( 2 )

## Unit-II

2. (a) The listed price of a cloth of Andhra Khadi Bhandar is ₹ 380 on which regular discount is $20 \%$. Due to partial damage in cloth an additional discount of $20 \%$ is allowed. For how much money the buyer paid to purchase it?
(b) An agent gets $3 \%$ commission on the full sale and $2 \%$ bonus on the amount of the sale exceeding ₹ 20,000 . He sold goods amounting to $₹ 35,000$. Calculate his commission, bonus and total remuneration.

## OR

A man purchases 200 kg rice at the rate of ₹ 10 per kg. He pays ₹ 200 as cartage and ₹ 100 as octroi. He sells the whole rice at $10 \%$ gain. Find the selling price per kg of rice.

## Unit-III

3. Solve the following equations by elimination method :

$$
\begin{aligned}
& 2 x+y=8 \\
& 2 x-y=4
\end{aligned}
$$

## OR

Explain Fundamental laws of logarithm.

## (3)

## Unit-IV

4. (a) Two numbers are in the ratio of $5: 8$ if 9 be added to each they are in the ratio $8: 11$. Find the numbers.
(b) 12 carpenters make 18 chairs in a certain time. How many chairs will be made by 10 carpenters in the same time ?

## OR

(a) Ram purchased 13 bags at the rate of ₹ 50 per bag, 15 bags at the rate of ₹ 60 per bag and 12 bags at the rate of 65 per bag. Find the average purchase price of per bag.
(b) From the following data about the wages of 5 workers, find the average wage:
₹ : 80, 70, 120, 100, 110

## Unit-V

5. Ajay obtained a loan of ₹ 4,000 at an interest rate of $6 \%$ p.a. He immediately rent ₹ 2,500 at an interest rate of $9 \%$ p.a. to Kiran and the balance at $12 \%$ p.a. to Soham. After three years he collected the amounts due to them and repaid his loan. Find his gain.

## (4)

If interest is payable quarterly, find the compound interest on ₹ 1500 @ $12 \%$ per annum for one year.

