B.M.S COLLEGE FOR WOMEN, AUTONOMOUS
BENGALURU – 560004
SEMESTER END EXAMINATION – JANUARY/FEBRUARY 2023

B.Com. Accounting and Finance - I Semester

BUSINESS MATHEMATICS
(NEP Scheme 2021-22 onwards)

Course Code: BAF1DSC02   **QP Code: 1037**
Duration: 2 ½ Hours   **Max. Marks:60**

Instructions: *All the answers should be written in English only.*

SECTION-A

1. Answer any FIVE of the following questions. Each question carries TWO Marks.   (5x2=10)

   a. Find the 20th term of AP 15, 12, 9, 6….

   b. Find the simple interest on ₹4,500 for 123 days at 5% p.a.

   c. Find the 4th proportional of 10, 40 & 50

   d. Solve for x, $7(x – 3) – 3 (x+4) = 7$

   e. If A = $\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \end{bmatrix}$ B = $\begin{bmatrix} 0 & 1 & 2 \\ 3 & 2 & 6 \end{bmatrix}$ find A+B

   f. Define diagonal matrix with an example.

   g. What is contingent annuity? Give an example.

SECTION-B

Answer any FOUR of the following question. Each question carries FIVE Marks.   (4x5=20)

   2. Solve the equation $\frac{3X-1}{2} + \frac{X+2}{3} = \frac{9X+12}{5} - 2$

   3. The sum of the three terms of a G.P is 26 and their product is 216. Find the numbers

   4. At what rate of compound interest per annum will a sum of ₹500 amounts to ₹578.81 in 3 years?

   5. Solve for A and B. Given 4A – 6B = $\begin{bmatrix} 10 & -56 & -48 \\ 10 & 12 & -30 \end{bmatrix}$ and

$$-3A + 5B = \begin{bmatrix} -8 & 46 & 41 \\ -7 & -9 & 25 \end{bmatrix}$$

6. If 30 men working 8 hours a day can do a piece of work in 24 days, in how many days 18 men working 10 hours a day will finish double the work?

SECTION-C

Answer any TWO of the following question. Each question carries TWELVE Marks. (2x12=24)

7. a. A bill for ₹4250 drawn on May 27th for 4 months was discounted on July 19th at 4% p.a. Find (a) Banker's discount (b) True discount (c) Banker's gain (d) Discounted value of the bill. (8)

    b. Is 512 a term of the series 1, 2, 4, 8….? (4)

8. a. Solve by Cramer's Rule 4x - 2y = 8 and 3x + y = -4 (6)

    b. Find the two numbers whose sum is 10 and their product is 24 (6)

9. a. Evaluate $\begin{vmatrix} 2 & 4 & 10 \\ 4 & 8 & 20 \\ 6 & 2 & -4 \end{vmatrix}$ (6)

    b. Find the present value of an annuity ₹2470 for 10 years at 4% p.a. (6)

SECTION-D

Answer any ONE of the following questions, carries SIX Marks. (1x6=6)

10. Mr. Ramesh wishes to purchase a house for ₹18,00,00 with the down payment of ₹4,00,000. If he can pay off the balance at 12% for 8 years, what is the monthly payment? What is the total interest paid?(Note:$(1.01)^{96}$ = 2.5993)

11. The total cost of manufacturing 3 types of mobile phones A, B, C is given by the following table:

Mobile phones	Labour(hrs)	Material(units)	Overheads(units)
A	4	10	5
B	8	15	8
C	10	25	10

Labour costs Rs 200 per hour, units of material cost Rs 50 each and units of overhead cost Rs 100 per unit. Find the total cost of manufacturing 3000, 2000 and 1000 mobile phones of each type A, B & C, respectively.

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