

Code No.: 12010 E Sub. Code: SMCO 42/
AMCO 42

B.Com. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Fourth Semester

Commerce – Core

BUSINESS MATHEMATICS

(For those who joined in July 2017 – 2020)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- If $x + 9 = 0$ then $x =$ _____
(a) 3 (b) 9
(c) -9 (d) 1/9
- Linear equation is also known as _____ equation.
(a) First degree (b) Second degree
(c) Variable (d) None of these

- Express as percentage: $24\frac{11}{20}$
(a) 1250% (b) 187%
(c) 2455% (d) 1375%
- Find 8% of 2000
(a) 880 (b) 160
(c) 6000 (d) 12000

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

- (a) Subtract $3x^2 - 5$ from $5x^2 - 6$.
Or
(b) Show that $\sqrt{2}$ is an irrational number.
- (a) (i) (27×216)
(ii) $(8 \times 16 \times 32)$

find the value with the help of indices rules.

Or

(b) Find the values of x of the following:

- $\log_3 x = 4$
- $\log_x 2 = \frac{1}{3}$

- $\log 1 =$ _____
(a) 1 (b) 10
(c) 0 (d) 100
- $\log_b a = c$ then
(a) $b^a = c$ (b) $b^c = a$
(c) $a^b = c$ (d) $a^c = b$
- The x — intercept of the straight line $2x + 3y = 4$ is
(a) 1 (b) 3
(c) 2 (d) 4
- The slope of the line $y = 2x + 3$
(a) 2 (b) 3
(c) 2/3 (d) 3/2
- If A and B are two matrices of order 2×2 then
(a) $A + B = B + A$ (b) $A + B \neq B + A$
(c) $AB = BA$ (d) None
- A _____ matrix is one which has equal number of rows and columns
(a) Null (b) Zero
(c) Square (d) Unit

- (a) Find the equation of the line cutting of intercepts -3 and 4 on x and y axis.

Or

- Find the equation the line passing through the points (2, -3) and (-4, 5).

- (a) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 0 \\ 1 & 2 \end{bmatrix}$ find AB .

Or

- If $A = \begin{bmatrix} 1 & 2 & -1 \\ 0 & 1 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 & 1 \\ 0 & 1 & 3 \end{bmatrix}$ find $A - B$.

- (a) Find the compound interest on Rs.8000 for 5 years at 12% per annum.

Or

- Write a short notes on Banker's discount.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

- (a) Solve: $x^2 - 5x + 8 = 0$

Or

(b) Solve

$$x + y + z = 6; 2x - y + z = 3; x - y + z = 2.$$

17. (a) Prove $3 \log \left(\frac{8}{3} \right) - 2 \log \left(\frac{16}{9} \right) = \log 6$.

Or

(b) Evaluate:

(i) $\frac{16^{\frac{1}{4}}}{27^{-\frac{1}{3}}}$

(ii) $\frac{18^{-3} \times 3^7}{2^{-5}}$

18. (a) Find the equation of the line passing through the intersection of the lines $2x - 3y + 4 = 0$, $x - 2y + 3 = 0$ and the point $(-1, 3)$.

Or

- (b) Find the equation of the line whose slope is $\frac{3}{2}$ and which cuts off 3 units along y axis.

19. (a) If $A = \begin{bmatrix} 2 & 2 \\ 3 & 5 \end{bmatrix}$ find A^{-1} .

Or

(b) Solve

$$2x + 3y - z = 9, x + y + z = 9; 3x - y - z = -1.$$

20. (a) Find the rate of interest when Rs. 500 amounts to Rs. 800 in 10 years compound interest being added quantity.

Or

- (b) A person deposits a certain sum of money into bank. If amounted to Rs. 7440 in 3 years and Rs. 8400 in 5 years. Find the sum and the rate of simple interest.