

Model Paper Business Mathematics (Commerce Group) Objective

Intermediate Part – I (11th Class) Examination Session 2012-2013 and onward

Total marks: 15 Paper Code _____ Time Allowed: 20 minutes

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

| Q No.1 | Question | A | B | C | D |
|--------|--|------------------|------------------|------------------|------------------|
| 1 | If $A : B = 2 : 3$ and $B : C = 3 : 5$ Hence A, B, C would be. | $2 : 3 : 5$ | $2 : 5 : 3$ | $3 : 2 : 5$ | $3 : 5 : 2$ |
| 2 | Decimal form of 5.3% is. | 53 | 0.53 | 0.0053 | 0.053 |
| 3 | Rs. 250 is $2\frac{1}{2}\%$ of what amount? | 1000 | 10000 | 100000 | 2500 |
| 4 | What is the interest on Rs. 1880.90 for one year at simple interest $5\frac{1}{2}\%$? | Rs. 100 | Rs. 103.45 | Rs. 105.5 | Rs. 110.5 |
| 5 | Payments are to be made at the beginning of each period is. | annuity | annuity due | ordinary annuity | perpetuity |
| 6 | If $H(S) = S^2 - 3$ then find $H(\frac{2}{3})$? | $\frac{23}{9}$ | $-\frac{23}{9}$ | $\frac{9}{23}$ | $-\frac{9}{23}$ |
| 7 | The function $f(x) = 2x^2 - 3x + 4$ is. | Constant | Linear | Cubic | Quadratic |
| 8 | If $\frac{1}{4}$ of an amount is Rs. 60, what is the amount? | 140 | 240 | 40 | 260 |
| 9 | Two linear factors of $y^2 + 10y + 24$ are: | $(y - 4)(y + 6)$ | $(y + 4)(y - 6)$ | $(y + 4)(y + 6)$ | $(y - 4)(y - 6)$ |
| 10 | Solution set of equation $4x + 5y = 40$ and $3x + 2y = 23$ is. | $\{(4, 5)\}$ | $\{(-5, 4)\}$ | $\{(5, 4)\}$ | $\{(-4, -5)\}$ |
| 11 | $(AB)^t$ is equal to: | $A^t B^t$ | $B^t A^t$ | AB^t | $A^t B$ |
| 12 | Any matrix "A" is a skew symmetric matrix if: | $A^t = A$ | $A^t = -A$ | $A = -A$ | $A = A^t$ |
| 13 | The order of matrix $\begin{bmatrix} 1 \\ 2 \\ 8 \\ 3 \end{bmatrix}$ is: | 1×4 | 4×1 | 4×4 | 3×4 |
| 14 | Decimal number system is based on: | 0 to 15 | 0 to 1 | 0 to 9 | 0 to 10 |
| 15 | Convert 77 to binary system: | $(1101101)_2$ | $(1001101)_2$ | $(1110001)_2$ | $(1000101)_2$ |

Model Paper Business Mathematics (Commerce Group) Subjective

Intermediate Part – I (11th Class) Examination Session 2012-2013 and onward

Total marks: 60

Time: 2 hours & 10 Minutes

SECTION.....1

Q 2. Answer briefly any SIX parts from the followings:-

6 × 2 = 12

i) Find the missing term in each case.

$$4 : 9 :: ? : 54 \quad \text{and} \quad 4 : 30 :: 20 : ?$$

ii) Define successive discount and its formula.

iii) What is commission on Rs. 3000 @ $3\frac{1}{3}\%$?

iv) Name two method of calculating depreciation.

v) If $\frac{1}{5}$ of an amount is Rs. 10000. Find the amount?

vi) What is interest due in case of Rs. 1000 loaned for 4 months at 6 % annum?

vii) Write at least two key points of compound interest.

viii) Define perpetuity.

ix) What will be the accumulated amount for after 3 years on an investment of Rs. 250000 at 9% simple interest?

Q .3 Answer briefly any SIX parts from the followings:-

6 × 2 = 12

i) Given function $g(u) = u^2 + u$ find $g(-x^2)$, $g(2v)$

ii) Define absolute value function.

iii) Give the domain of the function $\phi(x) = \frac{x}{x-3}$

iv) Six times a number is 180. What is the number?

v) Solve for 'x' $2x + 20 - 5x = x - 6 + 9x$

vi) Resolve in standard form $\frac{1}{x+3} - \frac{1}{x-3} = 3$

vii) Apply componendo and dividendo rule on

$$\frac{\sqrt{x-3} - \sqrt{x+3}}{\sqrt{x-3} + \sqrt{x+3}} = \frac{7}{4}$$

viii) Solve $x = y$ and $2x + y = 3$

ix) What is discriminant of $4x^2 - 13x + 3 = 0$

Q 4. Answer briefly any SIX parts from the followings:-

6 × 2 = 12

i) If $A = \begin{bmatrix} 4 & 5 \\ 2 & 3 \end{bmatrix}$ then find A^2

ii) Find A if $2A + \begin{bmatrix} 1 & 2 \\ 4 & 6 \end{bmatrix} = 0$

iii) Find AB if $A = \begin{bmatrix} 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$

iv) Define singular and non – singular matrices.

v) What do you understand by the transpose of a matrix?

vi) Simplify $(1001)_2 \times (101)_2$

vii) Write down the different number system.

viii) Find the sum of $(23)_{10} + (111)_2 = ()_{10}$

ix) Simplify $(1100)_2 - (111)_2$

SECTION.....2

Note: Attempt any three questions.

8 × 3 = 24

Q5 (a) An item marked with price tag of Rs. 200 is available at 15% discount. Find the discounted price and amount of discount.

(b) Find the simple interest on Rs. 400000 invested for 5 years and 6 months at 4% per year.

Q6 (a) Find the compound interest due in case of Rs. 1000 Loaned for 5 years at 6% per annum.

(b) draw the graph of $f(x) = 10 - 2x$

Q7 a) Solve $\frac{3x-10}{6} + \frac{8(3x-5)}{3} = 6x$

b) Find the number which added to 6 and 8 gives two numbers with a product of 288.

Q8 a) Solve $\begin{cases} 2x + 3y = 10 \\ 4x + 8y = 24 \end{cases}$

With the help of matrices.

b) If $A = \begin{bmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & 9 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 4 & 1 \\ 4 & 1 & 7 \\ 7 & -1 & -1 \end{bmatrix}$

then prove that $AB \neq BA$

Q9 a) Divide $(1100011)_2$ by $(1101)_2$

b) Simplify $[(1011100)_2 - (111100)_2] - \{(10000)_2 - (111)_2\}$