

BOARD OF INTERMEDIATE EDUCATION, KARACHI
H.S.C. Annual Examinations 2021

(MODEL QUESTION PAPER)

BUSINESS MATHEMATICS PAPER-I
(Commerce Regular & Private Groups)

Total Duration: 01:30 Minutes

Time Allowed: 40 Minutes

SECTION "A" (M.C.Qs)

Max Marks: 25

Note: This section consists of 25 part questions and all are to be answered.
Each question carries one mark.

1. Choose the correct answer for each from the given option.

i. In binary number system $1+1 =$:

- | | | | |
|---|---|---|--------|
| ♦ | 2 | ♦ | 1 |
| ♦ | 0 | ♦ | 10_2 |

ii. The product of $(x - 1)$ and $(x + 1)$ is equal to:

- | | | | |
|---|-------------|---|-------------|
| ♦ | $(x + 1)^2$ | ♦ | $(x^2 + 1)$ |
| ♦ | $(x^2 - 1)$ | ♦ | $(x - 1)$ |

iii. The binary number 10_2 is equivalent to the decimal number:

- | | | | |
|---|---|---|-----|
| ♦ | 2 | ♦ | 1 |
| ♦ | 3 | ♦ | 100 |

iv. $\sqrt[5]{x} = :$

- | | | | |
|---|-------|---|-----------|
| ♦ | x^3 | ♦ | x^5 |
| ♦ | x^7 | ♦ | $x^{1/5}$ |
- $(a + b)^2 = :$

v. $(a + b)^2$

- | | | | |
|---|-------------------|---|-------------------|
| ♦ | $a^2 - 2ab + b^2$ | ♦ | $a^2 + 2ab + b^2$ |
| ♦ | $a^2 - 2ab - b^2$ | ♦ | $a^2 + b^2$ |

vi. $(25)^{1/2} \times (8)^{1/3} \times (2)^2$

- | | | | |
|---|-----|---|-----|
| ♦ | 200 | ♦ | 120 |
| ♦ | 400 | ♦ | 40 |

vii. 5% of 400 is:

- | | | | |
|---|----|---|----|
| ♦ | 20 | ♦ | 40 |
| ♦ | 50 | ♦ | 25 |

viii. 120 is 30% of:

- | | | | |
|---|-----|---|------|
| ♦ | 360 | ♦ | 400 |
| ♦ | 300 | ♦ | 1200 |

ix. If $a:b = 2:3$ and $a:c = 2:4$, then $b:c =$:

- | | | | |
|---|-----|---|-----|
| ◆ | 1:2 | ◆ | 2:5 |
| ◆ | 3:2 | ◆ | 3:4 |

x. If selling price of a chair is Rs.700 and profit is Rs.250, then cost price of chair is:

- | | | | |
|---|---------|---|--------|
| ◆ | Rs. 950 | ◆ | Rs.450 |
| ◆ | Rs.400 | ◆ | Rs.500 |

xi. The ratio of 1.5 feet to 30 inches is:

- | | | | |
|---|-----|---|------|
| ◆ | 3:5 | ◆ | 1:10 |
| ◆ | 1:2 | ◆ | 2:5 |

xii. If $x:6 = 6:x$, then $x=$:

- | | | | |
|---|---|---|---------|
| ◆ | 9 | ◆ | -6 |
| ◆ | 8 | ◆ | ± 6 |

xiii. If simple interest on Rs. 5000 is Rs.100, then accumulated amount is Rs.:

- | | | | |
|---|------|---|------|
| ◆ | 5500 | ◆ | 4900 |
| ◆ | 5100 | ◆ | 1500 |

xiv. $A \times A^{-1} =$:

- | | | | |
|---|-------------|---|-----|
| ◆ | A^{-1} | ◆ | A |
| ◆ | Null matrix | ◆ | I |

xv. When a series of equal amount is made at equal intervals, each payment is known as:

- | | | | |
|---|----------|---|------------------|
| ◆ | Annuity | ◆ | Principal amount |
| ◆ | Interest | ◆ | Investment |

xvi. The slope of x-axis is :

- | | | | |
|---|---|---|---|
| ◆ | 2 | ◆ | 3 |
| ◆ | 5 | ◆ | 0 |

xvii. The y-intercept of the line $2y = x$ is

- | | | | |
|---|-------|---|---|
| ◆ | $1/2$ | ◆ | 2 |
| ◆ | 0 | ◆ | 1 |

xviii. The turning point of parabola is called:

- | | | | |
|---|--------|---|---------|
| ◆ | Ratio | ◆ | Roots |
| ◆ | Vertex | ◆ | Average |

xix. The x-intercept and y-intercept of the equation $\frac{x}{3} - \frac{y}{9} = 1$ are:

- | | |
|------------|---------------|
| ◆ 3 and 9 | ◆ -3 and 9 |
| ◆ 3 and -9 | ◆ 1/3 and 1/9 |

xx. If the number of rows and columns of a matrix are equal then the matrix is called:

- | | |
|---------------|----------------------|
| ◆ Null matrix | ◆ Square matrix |
| ◆ Unit matrix | ◆ Rectangular matrix |

xxi. The simple interest of Rs. 6000 for 3 years at 10% per year is Rs.

- | | |
|--------|--------|
| ◆ 1000 | ◆ 600 |
| ◆ 180 | ◆ 1800 |

xxii. The parabola $y = 3x^2 + 2x + 24$ opens:

- | | |
|-----------------|----------------|
| ◆ towards right | ◆ towards left |
| ◆ downward | ◆ upward |

xxiii. A matrix whose inverse does not exist is known as:

- | | |
|---------------|-------------------|
| ◆ Null matrix | ◆ Square matrix |
| ◆ Unit matrix | ◆ Singular matrix |

xxiv. The ordered pair $(-3, 4)$ is located on the quadrant:

- | | |
|---------|----------|
| ◆ First | ◆ Second |
| ◆ Third | ◆ Fourth |

xxv. The graph of a quadratic equation is a:

- | | |
|-----------------|-------------|
| ◆ Straight line | ◆ Curve |
| ◆ Circle | ◆ Rectangle |

Time: 50 Minutes

Max. Marks: 25

SECTION 'B' (SHORT-ANSWER QUESTIONS) (15 Marks)

Q2. Answer any three part question. All questions carry equal marks.

- (i) If 16 men paint 8 houses in 7 days. How many houses can 5 men paint in 14 days?
- (ii) Perform the following binary operations:
 - (a) $1011 + 1001 - 111$
 - (b) 1001×101
- (iii) Find the compound interest and accumulate amount on Rs. 60000 for 5 years at 7% per annum compounded quarterly.

- (iv) Find the inverse of the matrix $A = \begin{bmatrix} 2 & -8 \\ 3 & 6 \end{bmatrix}$

OR

- (a) Convert the binary number 1011_2 to its equivalent decimal number.
(b) Convert the decimal number 56 to the equivalent binary number.
- (v) Find the equation of straight line passes through the point (2, 3) with slope=4. Also find x-intercept and y-intercept.

SECTION 'C' DETAILED –ANSWER QUESTIONS (10 Marks)

Answer any one question from this section. All questions carry equal marks.

- Q3.** (a) Solve the equation: $\frac{-2}{2x+1} - \frac{4}{2x-1} = 5$
- (b) Solve the following simultaneous equations by Cramer's Rule.
 $x + 2y = 6$, $2x + 7y = 3$
- Q4.** (a) For the equation $x^2 - 5x + 6 = 0$, find the vertex and roots of the parabola.
- (b) Distribute Rs. 120000 among three partners A, B and C such that A:B = 1:2 and B:C = 3:1.

Result.pk

