

Business Mathematics

Federal Board of Intermediate & Secondary Education

Islamabad FBISE ICOM I Paper 2012

SECTION -A (Marks 10)

Time allowed: 15 Minutes

Note: Section - A is compulsory. All parts of this section are to be answered on the separately provided OMR Answer Sheet which should be completed in the first 15 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Circle the Correct Option i.e. A/B/C/D. Each Part Carries 1 Mark.

(i)	The equality of two ratios is called:			
	A. Proportion	B. Direct Proportion	C. Indirect Proportion	D. Percentage
(ii)	Rs. 250 is $2\frac{1}{2}$ % of Rs.:			
	A. 5000	B. 10,000	C. 12,000	D. 25,000
(iii)	The smallest terms of $\frac{4}{9}$ to $\frac{1}{3}$ are:			
	A. 4:3	B. 3:4	C. 9:3	D. 4:1
(iv)	Rs 5000 doubles itself in 5 years at the rate of:			
	A. 10%	B. 20%	C. 30%	D. None of these
(v)	If the payment starts on a certain date and continues for indefinite period, then it is called:			
	A. Ordinary Annuity	B. Annuity Due	C. Perpetuity	D. Contingent Annuity
(vi)	Function $g(x) = 1/20$ is:			
	A. Linear Function	B. Quadratic Function	C. Constant Function	D. None of these
(vii)	The roots of $ax^2 + bx + c = 0$ are real and unequal if:			
	A. $b^2 = 4ac$	B. $b^2 > 4ac$	C. $b^2 < 4ac$	D. $b^2 - 4ac = 0$
(viii)	A square matrix A is said to be singular if:			
	A. $ A \neq 0$	B. $ A = 0$	C. $ A < 0$	D. $ A > 0$

(ix)	If A is matrix of order 3x4 and B is a matrix of 4x5, then AB matrix will be of order:			
	A. 3x3	B. 3x4	C. 3x5	D. 4x4
(x)	What is the conversion of 7/8 to binary numbers?:			
	A. (0.011) ₂	B. (0.111) ₂	C. (0.101) ₂	D. (0.010) ₂

Time allowed: 2:15 Hours Total Marks Sections Band C: 40

NOTE: Attempt any eight parts from Section 'B' and any two questions from Section 'C' on the separately provided answer book. Use supplementary answer sheet i.e. Sheet-B if required. Write your answers neatly and legibly.

Q.2 Attempt any eight parts. All parts carry equal marks. (3 x 8) = 24

(i) Total Cost of heating & lighting was Rs. 10800 of a firm for the winter season. The ratio of consumption between heating & lighting was 3:1. Find heating & lighting cost respectively.

(ii) On cut-price shop, the price of a pair of shoes was Rs. 350 which is 30% less of actual price. Find the original price.

(iii) What is amount of commission on sale of Rs.25000 if the rate of commission is 5 ½ % on first Rs. 15000 & 6% on over Rs. 15000.

(iv) Find the market equilibrium point for the following supply & demand functions:
 Demand: $P = -3q + 26$ & Supply: $P = 4q - 9$

(v) Calculate compound interest earned for Rs. 5000 invested for 6 years at the rate of 7% per annum.

(vi) Solve for X: $\frac{2x-4}{5x+2} = \frac{4x-8}{10x+3}$

(vii) Solve the equation $3x^2 - 10x + 3 = 0$

(viii) A bag of cement & 3 bags of sand weigh 19kg & 4 bags of cement & 2 bags of sand weigh 25 kg. Find the weight of a bag of cement & of a bag of sand.

(ix) Find the value of the following by changing into decimal system.

- $(945)_{10} + (1111)_2$
- $(101111)_2 - (20)_{10}$

(x) Find multiplicative inverse of the matrix $A = \begin{bmatrix} 4 & -7 \\ 8 & 11 \end{bmatrix}$ & prove that $AA^{-1} = I$

(xi) Find the value of x when $\begin{bmatrix} 8 & x \\ 2 & 4 \end{bmatrix}$ is a singular matrix.

Section C

Attempt any two questions. All questions carry equal marks (2 x 8) = 16

Q.3 a. In a factory, a group of 30 workers working 8 hours a day can produce 3000 units in 20 days. In how many days 25 workers will produce 2500 units by working 10 hours a day.

b. A radio set cost a manufacturer Rs. 1200 to produce it and he sells it to a retailer for Rs. 1500. Find his markup percent on cost.

Q.4 a. in how many years a sum of Rs. 3000 would amount Rs. 4814.07 at 6% compounded semiannually?

b. If Rs. 300 are deposited at the beginning of each quarter in an account which earns interest, if the rate of 8% compounded quarterly, what will be the amount after the end of 3 and half years?

Q.5 a. If $\begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix} \begin{bmatrix} a & 2 \\ 7 & b \end{bmatrix} = \begin{bmatrix} 31 & 1 \\ 55 & 3 \end{bmatrix}$ Find a & b.

(b) A manufacturer produces and sells a product with monthly revenue $R(x) = 10x$ & $C(x) = 2.50x + 1200$. How many units must be produced each month to?

(i) Break Even (ii) Make a Profit

The End

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