Step Academy official

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CLASS	I.COM (PART-I)
SUBJECT	Business Maths
TOTAL MARKS	150
Paper Type	

Q1. Choose the correct answer. **150X1=150**

1. $\frac{4}{9}$ to $\frac{1}{3}$ is same as:

(A) 3 to 4 **(B)** 3 to 9 **(C)** 4 to 3 **(D)** 4 to 1

2. The ratio Rs.10,000 to Rs.1,00,000 for a year in present is:

(A) 10% **(B)** 0.1% **(C)** 100% **(D)** 1000%

3. 3.25 is a ratio of:

(A) 3 and 25 **(B)** 32.5 and 10 **(C)** 325 and 100 **(D)** 13 and 4

4. Ratio is a way of expressing relation between two:

(A) Homogeneous quantities **(B)** Non- homogeneous quantities **(C)** Different quantities **(D)** Identical quantities

5. A ratio can be reduce to its:

(A) Highest term **(B)** Lowest terms **(C)** Middle terms **(D)** Upper terms

6. The ratio between 7.5 kg and 3.5 kg is:

(A) 7:15 **(B)** 7-15 **(C)** $7 \div 15$ **(D)** $\frac{15}{7}$

7. If profit distribution ratio of two partners is 2 to 3, then second partner's share in profit is:

(A) $\frac{2}{3}$ **(B)** $\frac{3}{2}$ **(C)** $\frac{3}{5}$ **(D)** $\frac{2}{5}$

8. If you have to divide Rs. 1,00,000 among three in the ratio 2, 3 and 5, 2nd will receive:

(A) Rs. 20,000 **(B)** Rs. 30,000 **(C)** Rs. 50,000 **(D)** None of these

9. If A and B are in a business and A's investment in business is $\frac{a}{a+b}$ then B,s investment would be:

(A) $\frac{a+b}{a}$ **(B)** $\frac{b}{a+b}$ **(C)** $\frac{a+b}{b}$ **(D)** $1-\frac{b}{a+b}$

10. The investments of two persons in a business are Rs 8 lakhs and Rs. 2 lakhs. Hence, 2nd invested:

(A) Half of the first **(B)** 4 times the first **(C)** $\frac{1}{4}$th of the first **(D)** Double of the first

11. The ratio 210 : 315 in its lowest term is:

(A) $\frac{3}{2}$ **(B)** $\frac{42}{63}$ **(C)** $\frac{6}{9}$ **(D)** $\frac{2}{3}$

12. The smallest term of 4/9 to 1/3 are:

(A) 4:3 **(B)** 3:4 **(C)** 9:3 **(D)** 4:1

13. Every proportion consists of:

(A) One term **(B)** Two terms **(C)** Three terms **(D)** Four terms

14. The upper and lower terms as regard to position of a proportion are called:

(A) Means **(B)** Extremes **(C)** Highest & lowest terms **(D)** Focal terms

15. The rule upholds in every proportion is:

(A) Sum of means and sum of extremes are equal **(B)** Difference of means and difference of extremes are equal **(C)** Product of means and product of extremes are equal **(D)** Quotient of means and quotient of extremes are equal

16. In a direct proportion both the quantities concerned move in:

(A) Same direction **(B)** Opposite direction **(C)** Unknown direction **(D)** Known direction

17. In inverse proportion both the quantities move in:

(A) Same direction **(B)** Opposite direction **(C)** Unknown direction **(D)** Known direction

18. In compound proportion there exist equality of:

(A) Two ratios **(B)** Three ratios only **(C)** More than two ratios **(D)** Less than three ratios

19. The less the number of telephone calls, the lower the amount of bill, is an example of:

(A) Inverse proportion **(B)** Direct portion **(C)** Compound proportion **(D)** Continued proportion

20.
If works are to be increased to complete a job in shorter period, the quantities “workers” and “period” are:

(A) Directly related **(B)** Proportionally related **(C)** Inversely related **(D)** Exponentially related

21.
The expense of 40 persons for 10 days in a hotel is one million rupees. The per day per person expense is:

(A) Rs.2,000 **(B)** Rs. 2,500 **(C)** Rs. 3,000 **(D)** Rs. 3,500

22. Decimal fraction 0.005 in percentage form is:

(A) 5% **(B)** 0.5% **(C)** 0.005% **(D)** 50%

23. $14\frac{1}{2}$ % in common fraction is:

(A) 14.5 **(B)** $\frac{29}{100}$ **(C)** $\frac{29}{200}$ **(D)** $\frac{14.5}{200}$

24. $33\frac{1}{3}\%$ in fraction form is:

(A) $\frac{1}{2}$ **(B)** $\frac{1}{3}$ **(C)** $\frac{1}{4}$ **(D)** $\frac{1}{5}$

25. Decimal form of 5.3% is:

(A) 53 **(B)** 0.53 **(C)** 0.0053 **(D)** 0.053

26. $\frac{1}{2}$ is what percentage of $\frac{1}{4}$:

(A) 25% **(B)** 50% **(C)** 100% **(D)** 200%

27. The mathematical translation of "a% of b is c" is:

(A) Ab=c **(B)** Ac=100b **(C)** 100a=bc **(D)** Ab=100c

28. The change of 0.2% to fraction is:

(A) $\frac{1}{100}$ **(B)** $\frac{1}{200}$ **(C)** $\frac{1}{400}$ **(D)** $\frac{1}{500}$

29. The discount is:

(A) Reduction **(B)** Increase **(C)** May increase of decrease **(D)** None of these

30. Discount is:

(A) Difference **(B)** Sum **(C)** Product **(D)** Quotient

31. Discount in absolute term is:

(A) In percentage **(B)** In amount **(C)** Both (a) and (b) **(D)** None of these

32. Quantity discount is always in:

(A) Amount **(B)** Percentage **(C)** Quantity **(D)** Rupees

33. Formula for finding discounted price is:

(A) DP=SP(1+DR) **(B)** DP=DR(1+SP) **(C)** DR=DP(1-DR) **(D)** DP=SP(1-DR)

34. The percentage involved in brokerage is:

(A) Markup **(B)** Profit rate **(C)** Rate of communication **(D)** None of these

35. On a deal of Rs. 2,00,000 the commission was Rs.4500. The commission charged at the rate of:

(A) 2% **(B)** $2\frac{1}{4}\%$ **(C)** $2\frac{1}{2}\%$ **(D)** $2\frac{3}{4}\%$

36. Loss is opposite to:

(A) Markup **(B)** Profit **(C)** Mark-down **(D)** Quotient

37. The difference of selling price and cost as to be positive is:

(A) Loss **(B)** Mark-up **(C)** Profit **(D)** Margin

38. Profit in absolute term is always in:

(A) Amount **(B)** Percentage **(C)** Quantity **(D)** Ratio

39. The expression is:

(A) Profit **(B)** Mark-up **(C)** Mark-down **(D)** Rate of loss

40. Cost =Rs.500, Loss =5%, Selling price=?

(A) Rs. 25 **(B)** Rs.400 **(C)** Rs.475 **(D)** None of these

41. Under straight line method of depreciation, rate of depreciation and per year depreciation remain:

(A) Variable **(B)** Changed **(C)** Fixed **(D)** None of these

42. Under diminishing balance method, the rate of depreciation is always:

(A) Variable **(B)** Fixed **(C)** Both (a) and (b) **(D)** None of these

43. Amount of depreciation per year under reducing balance method:

(A) Varies year to year **(B)** Constant year to year **(C)** Both (a) and (b) **(D)** None of these

44. The interest rate specifics the rate at which interest:

(A) De-accumulates **(B)** Accumulates **(C)** Increase **(D)** Decrease

45. Principal=Rs.5000, Interest rate=10% semi-annually. Period =Half year, Interest=?

(A) Rs. 1000 **(B)** Rs. 5000 **(C)** Rs. 250 **(D)** Rs.200

46. Principal remains constant for the calculation of interest for every period in:

(A) Compound interest **(B)** Simple interest **(C)** Nominal interest **(D)** Continuous interest

47. Interest rate remains fixed for every period in:

(A) Simple interest **(B)** Compound interest **(C)** Both (a) and (b) **(D)** None of these

48. Formula for finding accumulated amount by compound interest method is:

(A) S.I=PIN **(B)** $C.I = P[(I+i)^n - 1]$ **(C)** A=P(I+IN) **(D)** $A = P(I+i)^n$

49. Compound interest for same principal, same rate and same period is always:

(A) <Simple interest **(B)** Simple interest **(C)** >Simple interest **(D)** Simple interest Simple interest

50. At what compound interest rate you can double your amount in 9 years:

(A) 5% p.a **(B)** 6% p.a **(C)** 8% p.a **(D)** 9% p.a

51. A sequence of regular-fixed-periodic payments is:

(A) Series **(B)** Interest **(C)** Annuity **(D)** None of these

52. Payments are to be made at the beginning of each period in:

(A) Annuity **(B)** Annuity due **(C)** Ordinary annuity **(D)** Perpetuity

53. Each payment at the end of each period of annuity is made in:

(A) Ordinary annuity **(B)** Annuity due **(C)** Perpetuity **(D)** Annuity

54. Never ending annuity is:

(A) Ordinary annuity **(B)** Annuity due **(C)** Perpetuity **(D)** Annuity

55. Lump sum amount at the end of annuity is:

(A) Sum of annuity **(B)** Amount of annuity **(C)** Present value of annuity **(D)** Both (a) and (b)

56. Amount of annuity is always:

(A) Present value **(B)** Current value **(C)** Both (a) and (b) **(D)** Future value

57. Sum of annuity involves:

(A) Accumulation factor **(B)** Discount factor **(C)** Inflation factor **(D)** Deflating factor

58. Annuity accumulation factor for i=0.02 and n=10 is:

(A) 10 **(B)** 10.95 **(C)** 11.05 **(D)** 8.98

59. Monthly installments of a leased car is calculated by using the concept of:

(A) Simple interest method **(B)** Compound interest method **(C)** Sum of annuity **(D)** Present value of annuity

60. The time interval between any two consecutive payments of an annuity always:

(A) Constant **(B)** Variable **(C)** Unfixed **(D)** None of these

61. The formula: $R\frac{(I+i)^{(n+1)}-1}{i}-R$ is used to calculate:

(A) Sum of ordinary annuity **(B)** Present value of ordinary annuity **(C)** Sum of annuity due **(D)** Present value of annuity due

62. If the payments starts on a certain date and continuous for indefinite period, then it is called:

(A) Ordinary annuity **(B)** Ordinary annuity **(C)** Annuity due **(D)** Perpetuity

63. Equation states:

(A) Equality **(B)** In equality **(C)** Comparison **(D)** None of these

64. The equation ax+b=0 is:

(A) Linear **(B)** Quadratic **(C)** Constant **(D)** Non-linear

65. Golden rule of algebra suggests that: what we do on the one side of the equation:

(A) Also do not the other side **(B)** Don't do on the other side **(C)** Both (a) and (b) **(D)** None of these

66. A linear equation always has:

(A) Three roots **(B)** Two roots **(C)** One root **(D)** No root

67. Rs.600 is $1\frac{1}{2}$ times of:

(A) Rs.100 **(B)** Rs. 200 **(C)** Rs. 300 **(D)** Rs. 400

68. Technical term to show elements of the solution set is:

(A) Constant **(B)** Variable **(C)** Root **(D)** Coefficient

69. Method of solving linear equation is:

(A) Factorization **(B)** Quadratic formula **(C)** Transposition **(D)** None of these

70. If six times a number is 180, then the number will be:

(A) 10 **(B)** 20 **(C)** 30 **(D)** 40

71. In the equation y=ax+b, a and b are:

(A) Variables **(B)** Complex numbers **(C)** Constant numbers **(D)** None of these

72. Given that x+(x+8)=20, then the value of x is =:

(A) 4 **(B)** 6 **(C)** 8 **(D)** 10

73. A quadratic equation in standard form is comprise of:

(A) Single term **(B)** Two terms **(C)** Three terms **(D)** Four terms

74. Methods available to solve a quadratic equation are:

(A) One **(B)** Two **(C)** Three **(D)** Four

75. The quadratic formula is:

(A) $x = \sqrt{b^2 - 4ac}$ **(B)** $ax^2 + bx + c = 0$ **(C)** $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ **(D)** None of these

76. In quadratic equation the variable has degree:

(A) 1 **(B)** 2 **(C)** More than 2 **(D)** Less than 2

77. Discriminant in quadratic formula is:

(A) $b^2 - 4ac$ **(B)** b^2 **(C)** -4ac **(D)** $\frac{b^2 - 4ac}{2a}$

78. The quadratic equation has single root, if discriminant is:

(A) Zero **(B)** None-zero **(C)** Positive **(D)** Negative

79. The quadratic formula for $cx^2 + bx + a = 0$ is:

(A) $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2c}$ **(B)** $x = \frac{-b \pm \sqrt{a^2 - 4bc}}{2a}$ **(C)** $x = \frac{-b \pm \sqrt{c^2 - 4ab}}{2a}$ **(D)** $x = \frac{-b \pm \sqrt{b^2 + 4ac}}{2a}$

80. Equation of the form $ax^4 + bx^3 + cx^2 + a$ is:

(A) Polynomial **(B)** Reciprocal **(C)** Irrational **(D)** None of these

81. The point to remember for reciprocal equation is that the coefficient from the beginning and end are:

(A) Equal **(B)** Not equal **(C)** May or may not equation **(D)** None of these

82. Roots of the equation that do not satisfy the equation are called:

(A) Internal root **(B)** Extraneous root **(C)** Outer root **(D)** Real root

83. If $\frac{a}{b} = \frac{c}{d}$ then given proportion is also equal to:

(A) $\frac{a-b}{a+b} = \frac{c-d}{c+d}$ **(B)** $\frac{a+b}{a-b} = \frac{c+d}{c-d}$ **(C)** Both (a) and (b) **(D)** None of these

84. The rule that equalize $\frac{a}{b} = \frac{c}{d}$ to $\frac{a-b}{a+b} = \frac{c-d}{c+d}$ is:

(A) Component **(B)** Dividend **(C)** Component and dividend **(D)** None of these

85. Transformation in making $y + \frac{1}{y} = \frac{13}{6}$ from $\sqrt{\frac{x}{1-x}} + \sqrt{\frac{1-x}{x}} = \frac{13}{6}$ is:

(A) $\sqrt{\frac{1-x}{x}} = = y$ **(B)** $\sqrt{\frac{x}{1-x}} = = y$ **(C)** Both (a) and (b) **(D)** $\frac{1-x}{x}$

86. The concept of "function" in mathematics is introduced by:

(A) Woods worth **(B)** Fishers **(C)** John Philip **(D)** Gottfried

87. Input variable of a function is also called:

(A) Independent variable **(B)** Output variable **(C)** Constant **(D)** Effect variable

88. Dependent variable of a function is actually its:

(A) Input v variable **(B)** Output variable **(C)** Chance variable **(D)** None of these

89. Function is a way of expressing one to one correspondence between the values of :

(A) Independent and input variables **(B)** Dependent and output variables **(C)** Independent and dependent variables **(D)** None of these

90. In any function there will be only one:

(A) Independent variable **(B)** Dependent variable **(C)** Random variable **(D)** None of these

91. In any function there may be more than one:

(A) Independent variables **(B)** Dependent variables **(C)** Non-random variables **(D)** None of these

92. Every equation could not necessarily be a :

(A) Function **(B)** In function **(C)** Equation **(D)** None of these

93. In function the term g(2)=500 is read as:

(A) G of 500 equals 2 **(B)** G of 2 equals 500 **(C)** 2 if g equals 500 **(D)** 500 of g equals 2

94. In function h(t)=500t+100, the term h(t) represents:

(A) Functional values **(B)** Values of independent variable **(C)** Domain **(D)** None of these

95. If the set{(2,4),(3,7),(5,8)} shows relation x=g(y), then the set (4,7,8) represents:

(A) Domain **(B)** Range **(C)** Relation **(D)** None of these

96. H(x)=100 is a:

(A) Linear function **(B)** Quadratic function **(C)** Constant function **(D)** Compound function

97. The terms g(x), h(x), $\phi(x)$, f(x), etc. are used to indicate:

(A) Variable **(B)** Constant **(C)** Function rule **(D)** None of these

98. A constant function f(x)=0 is also polynomial function of degree:

(A) One **(B)** Two **(C)** Three **(D)** None of these

99. Compound function is always expressed by:

(A) Single expression **(B)** Only two expressions **(C)** Three expressions **(D)** At least two expressions

100. The concept of leading co-efficient associated with:

(A) Compound function **(B)** Rational function **(C)** Polynomial function **(D)** Odd function

101. A function given by more than one expression is called:

(A) Constant function **(B)** Absolute function **(C)** Compound function **(D)** Real function

102. If f(x) = f(-x) the function is:

(A) Odd **(B)** Even **(C)** Constant **(D)** Explicit

103. The function is $f(x) = 2x^2 - 3x + 4$:

(A) Constant **(B)** Linear **(C)** Quadratic **(D)** Cubic

104. A non-zero constant function is a polynomial function of degree:

(A) Zero **(B)** One **(C)** Two **(D)** Three

105. The function $g(t) = \frac{5t-3}{2}$ is:

(A) Constant **(B)** Linear **(C)** Quadratic **(D)** Absolute

106. Function g(t)=1/20 is_____:

(A) Linear **(B)** Quadratic function **(C)** Constant function **(D)** None of these

107. No.of rows and no. of columns of a matrix:

(A) Must be equal **(B)** May by equal **(C)** May not be equal **(D)** May or may not be equal

108. Consideration of no. of rows and columns of a matrix is called:

(A) Size of the matrix **(B)** Rank of the matrix **(C)** Order of the matrix **(D)** Weight of the matrix

109. Order of the matrix having m rows and n columns is:

(A) m+n **(B)** m-n **(C)** $m \div n$ **(D)** $m \times n$

110. A matrix having m rows and n columns is called square if:

(A) m>n **(B)** m<n **(C)** m=n **(D)** $m \neq n$

111. [2 -1 3 4] is a :

(A) Square matrix **(B)** Column matrix **(C)** Row matrix **(D)** Inverse matrix

112. A matrix comprising all zero entries is:

(A) Unit matrix **(B)** Null matrix **(C)** Row matrix **(D)** Column matrix

113. The transpose of row matrix is a:

(A) Row matrix **(B)** Column matrix **(C)** Unit matrix **(D)** None of these

114. Any matrix "A" is a symmetric matrix if:

(A) A=-A $A = A^t$ **(B)** $A = A^t$ **(C)** $A = -A^t$ **(D)** $A = A^{-1}$

115. is an identity matrix of order:

(A) 1 x 2 **(B)** 2 x 2 **(C)** 2 x 1 **(D)** 3 x 3

116. In scalar matrix all entries of principal diagonal are:

(A) Different **(B)** Same **(C)** Same & one **(D)** Zero

117. A matrix $A = [a_{ij}]$ is called row matrix if:

(A) i=I and j=I **(B)** i=I and j>I **(C)** i<I and J>I **(D)** i > I and j=I

118. Identity matrix is also called:

(A) Infinite matrix **(B)** Finite matrix **(C)** Zero matrix **(D)** Unit matrix

119. if then x is:

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4

120. is a:

(A) Scalar matrix **(B)** Diagonal matrix **(C)** Zero matrix **(D)** Rectangular matrix

121. is a:

(A) Identity matrix **(B)** Scalar matrix **(C)** Diagonal matrix **(D)** Unit matrix

122. If A is a singular matrix then:

(A) A=0 **(B)** $|A| = 0$ **(C)** $A \neq 0$ **(D)** $|A| \neq 0$

123. Two matrices A and B can be multiplied to get AB if:

(A) Both are rectangular **(B)** Number of rows of an equal no. of rows of B **(C)** No. of columns A same as no. of rows of B **(D)** None of these

124. For A+B, both matrices must be of:

(A) Different order **(B)** Same order **(C)** Any order **(D)** None of these

125. Do (A+M)+C=A+(B+C)?

(A) No **(B)** Yes **(C)** May or may not **(D)** Never

126. Do AB =BA?

(A) Never **(B)** Yes **(C)** May or may not **(D)** None of these

127. For , |A| will be:

(A) 3 **(B)** 5 **(C)** 0 **(D)** Infinite

128. The inverse of matrix is:

(A) **(B)** **(C)** **(D)**

129. The order of a matrix is:

(A) 3 x 2 **(B)** 2 x 2 **(C)** 2 x 3 **(D)** 1 x 3

130. $I_3 \times |I_3| = ?$

(A) I_3 **(B)** O **(C)** I **(D)** None of these

131. The symmetrical matrix and original matrix are always:

(A) Equal **(B)** Not equal **(C)** May or may not equal **(D)** Don't know

132. If $A^t = A$ then A is called:

(A) Symmetric matrix **(B)** Non-symmetric matrix **(C)** Singular matrix **(D)** Unit matrix

133. The matrix is:

(A) Scalar matrix **(B)** Identity matrix **(C)** Diagonal matrix **(D)** Null matrix

134. The matrix is:

(A) Null matrix **(B)** Singular matrix **(C)** Diagonal matrix **(D)** Null matrix

135. If then matrix X will be:

(A) **(B)** **(C)** **(D)**

136. A matrix "A" is called symmetric if:

(A) $A^t = -A$ **(B)** $A^t = A$ **(C)** $A^t = |A|$ **(D)** None of these

137. If A is matrix of order 3 x 4 and B is a matrix of 4 x 5 then AB matrix will be of order---------:

(A) 3 x 3 **(B)** 3 x 4 **(C)** 3 x 5 **(D)** 4 x 4

138. Any square matrix "A" is symmetric, if:

(A) A = -A **(B)** $A^t = A$ **(C)** $A^t = -A$ **(D)** $A = A^{-1}$

139. Binary number system is based on the digits:

(A) 0 to 9 **(B)** 0 to 1 **(C)** 0 to 7 **(D)** 0 to 15

140. Number system used in computer is:

(A) Decimal **(B)** Binary **(C)** Octal **(D)** Hexadecimal

141. Hexadecimal number system is based on:

(A) Two digits **(B)** Ten digits **(C)** Eight digits **(D)** Sixteen digits

142. Octal Number system is based on:

(A) Two digits **(B)** Eight digits **(C)** Ten digits **(D)** Sixteen digits

143. The decimal number "2" in binary number system is equivalent to:

(A) 0 **(B)** 1 **(C)** 10 **(D)** 11

144. The binary number "10" is in decimal system is equivalent to:

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4

145.
To express a number greater than 1 but less than 1000 in decimal number system, we use combination of :

(A) Four digits from 0 to 9 **(B)** Three digits from 0 to 9 **(C)** Ten digits from 0 to 9 **(D)** One digit from 0 to 9

146. Conversion of 37 into binary numbers is:

(A) $(10011)_2$ **(B)** $(11110)_2$ **(C)** $(100101)_2$ **(D)** $(11000)_2$

147. 8 in binary system is:

(A) $(100)_2$ **(B)** $(1000)_2$ **(C)** $(10000)_2$ **(D)** None of these

148. $(10110)_2$ in decimal number is:

(A) 20 **(B)** 22 **(C)** 24 **(D)** 26

149. 19 in binary system is:

(A) $(10010)_2$ **(B)** $(11101)_2$ **(C)** $(10111)_2$ **(D)** $(10011)_2$

150. In decimal $(101)_2 + (11)_2$ is equal to:

(A) 2 **(B)** 4 **(C)** 8 **(D)** None of these