Paper - 4
Quantitative Aptitude

Chapter 1 : Ratio and Proportion Indices and Logarithm

2009 – December

[1] $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n}$

(a) 1/2
(b) 3/2
(c) 2/3
(d) 1/3

[2] If $2^x \times 3^y \times 5^z = 360$ Then what is the value of x, y, z.?

(a) 3, 2, 1
(b) 1, 2, 3
(c) 2, 3, 1
(d) 1, 3, 2

[3] Find the value of $\left[\log_{10}\sqrt{25} - \log_{10}(2^3) + \log_{10}(4)^2\right]^x$

(a) x
(b) 10
(c) 1
(d) None

Chapter 2 : Equations

2009 – December

[4] If the length of a rectangle is 5 cm more than the breadth and if the perimeter of the rectangle is 40 cm, then the length & breadth of the rectangle will be :

(a) 7.5 cm, 2.5 cm
(b) 10 cm, 5 cm
(c) 12.5 cm, 7.5 cm
(d) 15.5 cm, 10.5 cm

[5] The point of intersection of the lines $2x - 5y = 6$ and $x + y = 3$ is

(a) (0, 3)
(b) (3, 0)
(c) (3, 3)
(d) (0, 0)

[6] Find the equation of the line passing through the point (1,1) and parallel to the line $3x + 5y + 17 = 0$

(a) $3x + 5y + 8 = 0$
(b) $5x + 3y + 8 = 0$
(c) $5x + 3y - 8 = 0$
(d) $3x + 5y - 8 = 0$

[7] The graph of straight line $x = 5$ will be :-

(a) Intersecting both the axis
(b) Parallel to y –axis
(c) Parallel to x – axis
(d) None of these

[8] Find the equation of the line joining the point (3,5) with the point of intersection $2x + 3y - 5 = 0$ and $3x + 5y - 7 = 0$.

(a) $6x + y + 23 = 0$
(b) $6x + y - 23 = 0$
(c) $6x + 2y + 14 = 0$
(d) $2x + 5y + 5 = 0$

Chapter 4 : Simple and Compound Interest Including Annuity Applications

2009 – December

[9] In how many years, a sum of Rs. 1000 compounded annually @ 10%, will amount to Rs. 1331?

(a) 6 years
(b) 5 years
(c) 4 years
(d) 3 years

[10] The compound interest for a certain sum @ 5% p.a. for first year is Rs. 25. The SI for the same money @ 5% p.a. for 2 years will be.

(a) Rs. 40
(b) Rs. 50
(c) Rs. 60
(d) Rs. 70

Chapter 5 : Basic Concepts of Permutations and Combinations

2009 – December

[11] $(n + 1)! = 20 (n - 1)!$, find n

(a) 6
(b) 5
(c) 4
(d) 10

[12] Out of 4 gents and 6 ladies, a committee is to be formed. F0ind the number of ways the committee can be formed such that it comprises of at least 2 gents and at least the number of ladies should be double of gents.

(a) 94
(b) 132
(c) 136
(d) 104

[13] In a bag, there were 5 white, 3 red, and 2 black balls. Three balls are drawn at a time. What is the probability that the three balls drawn are white?

(a) 1/12
(b) 1/24
(c) 1/120
(d) None of these

[14] In how many ways can the letters of 'REGULATION' be arranged so that the vowels come at odd places?
(a) 1/252
(b) 1/144
(c) 144/252
(d) None of these

Chapter 6 : Sequence and Series Arithmetic and Geometric Progression

2009 – December

[15] The sum of an A P, whose first term is - 4 and last term is 146 is 7171. Find the value of n.
(a) 99
(b) 100
(c) 101
(d) 102

[16] Find the sum to infinity of the following series:
1 – 1 + 1 – 1 + 1 – 1 + ... ∞
(a) 1
(b) ∞
(c) $^1/_2$
(d) Does not exist

Chapter 7 : Sets, Functions & Relations

2009 – December

[17] X = { x, y, w, z} , y = {1,2,3,4}
H = { (x, 1), (y, 2) , (y, 3) , (z, 4), (x, 4)}
(a) H is a function from X to Y
(b) H is not a function from X to Y
(c) H is a relation from Y to X
(d) None of the above

[18] Given the function f(x) = (2x + 3), then the value of f(2x) −2f(x) +3 will be :
(a) 3
(b) 2
(c) 1
(d) 0

[19] If $f(x) = 2x + h$ then find $f(x + h) – 2f(x)$
(a) h – 2x
(b) 2x – h
(c) 2x + h
(d) None of these

Chapter 8 : Limits and Continuity Intuitive Approach

2009 – December

[20]

$$f(x) = \begin{cases} 5 - \frac{x^2}{5}, & 0 < x < 5 \\ 0 & x = 5 \\ 5 - \frac{5^3}{x^2} & x > 5 \end{cases}$$

Then f(x) is :
(a) Continuous at x = 5
(b) Discontinuous at x = 5
(c) Undefined at x = 5
(d) None of the above

[21] $\lim_{x \to -1/3} \frac{9x^2 - 1}{3x + 1}$
(a) ∞
(b) 1
(c) 2
(d) – 2

[22] $\lim_{x \to 0} \frac{6x + 8xe^x}{\log(1+2x)}$
(a) 7
(b) 14
(c) 4
(d) None

Chapter 9 : Basic Concepts of Differential and Integral Calculus

2009 – December

[23] $\int \left(\sqrt{x} + \frac{1}{\sqrt{x}} \right) dx$
(a) $2x^{1/2} \left(\frac{1}{3}x - 1 \right)$
(b) $2x^{1/2} \left(\frac{1}{3}x + 1 \right)$
(c) $2 \left(\frac{1}{3}x + x^{1/2} \right)$
(d) None of these.

[24] $\int_0^1 \left(\frac{1 - x}{1 + x} \right) dx$
(a) 2 log 2 − 1
(b) 4 log 2 − 1
(c) 2 log 2
(d) None of these

[25] x = 2 t + 5 and $y = t^2 - 5$, then $\frac{dy}{dx} = ?$
(a) t
(b) − 1/t
(c) 1/t
(d) 0

[26] $x = at^2$ y = 2 at, $\frac{dy}{dx} = ?$
(a) 1/t
(b) − 1/t
(c) t
(d) None of the above

[27] Find the second derivative of $y = \sqrt{x+1}$
(a) $1/2\ (x + 1)^{-1/2}$
(b) $-1/4\ (x + 1)^{-3/2}$

(c) $1/4\ (x+1)^{-1/2}$
(d) None of these.

Chapter 10 : Statistical Description of Data

2009 – December

[28] Arrange the dimensions of Bar diagram, Cube diagram, Pie diagram in sequence.
(a) 1, 2, 3
(b) 2, 1, 3
(c) 2, 3, 1
(d) 3, 2, 1

[29] Histogram is used to find _____.
(a) Mean
(b) Median
(c) Mode
(d) None of these

[30] Nationality of a person is :
(a) Discrete variable
(b) An attribute
(c) Continuous variable
(d) None

[31] If we plot less than and more than type frequency distribution, then the graph plotted is _____.
(a) Histogram
(b) Frequency Curve
(c) Ogive
(d) None of these

Chapter 11 : Measures of Central Tendency and Dispersion

2009 – December

[32] When mean is 3.57 and mode is 2.13 then the value of median is _____.
(a) 3.09
(b) 5.01
(c) 4.01
(d) None of these

[33] If L_1 = highest observation and L_2 = smallest observation, then Coefficient of Range =
(a) $\dfrac{L_1 \times L_2}{L_1/L_2} \times 100$
(b) $\dfrac{L_1 - L_2}{L_1 + L_2} \times 100$
(c) $\dfrac{L_1 + L_2}{L_1 - L_2} \times 100$
(d) $\dfrac{L_1/L_2}{L_1 \times L_2} \times 100$

[34] The equation of a line is $5x + 2y = 17$. Mean deviation of y about mean is 5. Calculate mean deviation of x about mean.
(a) – 2
(b) 2
(c) – 4
(d) None

[35] If variance of x is 5, then find the variance of (2 – 3x)
(a) 10
(b) 15
(c) 5
(d) –13

Chapter 12 : Correlation And Regression

2009 – December

[36] Which of the following regression equations represent regression line of Y on X :
$7x + 2y + 15 = 0$, $2x + 5y + 10 = 0$
(a) $7x + 2y + 15 = 0$
(b) $2x + 5y + 10 = 0$
(c) Both (a) and (b)
(d) None of these

[37] If the rank correlation co-efficient between marks in Management and Mathematics for a group of students is 0.6 and the sum of the squares of the difference in ranks is 66, Then what is the number of students in the group?
(a) 9
(b) 10
(c) 11
(d) 12

[38] Correlation coefficient between X and Y will be negative when:-
(a) X and Y are decreasing
(b) X is increasing, Y is decreasing
(c) X and Y are increasing
(d) None of these

[39] The two regression lines are $7x - 3y - 18 = 0$ and $4x - y - 11 = 0$. Find the values of b_{yx} and b_{xy}
(a) 7/3, 1/4
(b) – 7/3, – 1/4
(c) –3/7, – 1/4
(d) None of these.

Chapter 13 : Probability and Expected Value By Mathematical Expectation

2009 – December

[40] P(A) = 2/3; P (B) = 3/5; P(A∪B) = 5/6. Find P (B/A)
(a) 11/20
(b) 13/20
(c) 13/18
(d) None

[41] If P (A∩B) = P (A) × P (B), then the events are:
(a) Independent events
(b) Mutually exclusive events
(c) Exhaustive events
(d) Mutually inclusive events

[42] E (XY) is also known as:
(a) E (X) + E (Y)
(b) E (X) E (Y)
(c) E (X) – E (Y)
(d) E (X) ÷ E (Y)

Chapter 14 : Theoretical Distributions

2009 – December

[43] Shape of Normal Distribution Curve:
(a) Depends on its parameters
(b) Does not depend on its parameters
(c) Either (a) or (b)
(d) Neither (a) nor (b)

[44] For binomial distribution E(x) = 2, V (x) = 4/3. Find the value of n.
(a) 3
(b) 4
(c) 5
(d) 6

[45] What are the parameters of binomial distribution?
(a) n
(b) p
(c) Both n and p
(d) None of these

Chapter 15 : Sampling Theory

2009 – December

[46] Distribution formed of all possible value of statistics is called_____.
(a) Sampling Distribution
(b) Classification
(c) Tabulation
(d) None

[47] In sampling, standard error is :
(a) Standard deviation
(b) Quartile deviation
(c) Mean deviation
(d) Coefficient of variation

[48] If every 9th unit is selected from universal set, then this type of sampling is known as:
(a) Quota Sampling
(b) Systematic Sampling
(c) Stratified Sampling
(d) None of these

Chapter 16 : Index Numbers

2009 – December

[49] Time reversal & factor reversal are :
(a) Quantity Index
(b) Ideal Index
(c) Price Index
(d) Test of Consistency

[50] In Laspeyeres Index Number _____are used as weights?
(a) Base year price
(b) Current year price
(c) Base year quantities
(d) Current year quantities

Answer

1.	(b)	2.	(a)	3.	(c)	4.	(c)
5.	(b)	6.	(d)	7.	(b)	8.	(b)
9.	(d)	10.	(b)	11.	(c)	12.	(b)
13.	(a)	14.	(a)	15.	(c)	16.	(c)
17.	(b)	18.	(d)	19.	(a)	20.	(a)
21.	(d)	22.	(a)	23.	(b)	24.	(a)
25.	(a)	26.	(a)	27.	(b)	28.	(c)
29.	(c)	30.	(b)	31.	(c)	32.	(a)
33.	(b)	34.	(b)	35.	(b)	36.	(b)
37.	(b)	38.	(b)	39.	(a)	40.	(b)
41.	(a)	42.	(b)	43.	(a)	44.	(d)
45.	(c)	46.	(a)	47.	(a)	48.	(b)
49.	(d)	50.	(c)				