



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

FUNDAMENTALS OF BUSINESS MATHEMATICS AND STATISTICS (PAPER - 3)

MCQ BANK

| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|---|----------------|-----------------|-----------------|------------------|
| 1 | Two numbers are in the ratio 7: 9, if the sum of the numbers is 288, then the smaller number is : | 126 | 288 | 162 | 144 |
| 2 | When the number 1580 is increased in the ratio 5: 9, the new number is : | 788 | 2488 | 878 | 2844 |
| 3 | The ratio of the number of faces to the number of edges of a box is : | 3:8 | 8:3 | 1:2 | 2:1 |
| 4 | Find the fourth proportional to 6, 8, 9 is: | 18 | 12 | 7 | 13 |
| 5 | Find the compounded ratio of: 15: 8 and 18: 5 | 27:4 | 4:27 | 27:8 | 8:27 |
| 6 | Find the third proportional to $6\frac{1}{4}$ and 5 | $9\frac{1}{2}$ | $3\frac{1}{5}$ | 4 | 8 |
| 7 | Find the Duplicate ratio of $8a : \sqrt{4b}$ | $64a^2 : 2b^2$ | $16a^2 : b^2$ | $32a^2 : 4b^2$ | $32a^2 : 8b^2$ |
| 8 | A class consists of 48 male students and 23 female students. Find the ratio of female students to total strength of the class : | 23:48 | 48:23 | 48:71 | 23:71 |
| 9 | If 4, 6, p, 27, q are in continued proportion, find the values of p and q. | $p = 9, q = 9$ | $p = 9, q = 81$ | $p = 81, q = 9$ | $p = 81, q = 81$ |
| 10 | If a Stadium having spectators divided into groups of Young Generation and Old Generation and the number of young spectators are 1525 and old spectators are 1875. Find the ratio of Total Spectators to Young Spectators. | 136:75 | 136:85 | 75:61 | 136:61 |
| 11 | Find two numbers whose mean proportional is 8 and the 1st number is square of the 2nd number. | 8,8 | 4,2 | 16,4 | 64,8 |
| 12 | AB LLP is expecting to receive a certain sum of money five years from now. If the present value of this sum is ₹38,400 at current market interest rate of 6% when the interest is compounded monthly, then how much amount they will receive after 5 years? | ₹52,684 | ₹52,884 | ₹51,904 | ₹51,794 |
| 13 | What sum will amount to ₹5480 in 6 years at 10% p.a. compound interest payable half-yearly? | ₹ 3,051 | ₹ 2,051 | ₹ 3,501 | ₹ 2,501 |
| 14 | Mr. Singh deposits ₹2,000 at the beginning of each year for 5 years. How much do these accumulate at | ₹ 10,272 | ₹ 11,591 | ₹ 10,727 | ₹ 11,950 |



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| | the end of 5th year at an interest rate of 6%? | | | | |
| 15 | A buys a shop for ₹48,750 down payment and ₹60,000 after one year. If the money is worth 10% per year compounded half-yearly. Find the purchase price of the shop. | ₹ 94,280 | ₹ 1,03,170 | ₹ 45,530 | ₹ 54,420 |
| 16 | A loan of ₹20,000 has been issued for 5 years. Compute the amount to be repaid to the lender if simple interest is charged @ 8% per year. | ₹ 28,000 | ₹ 25,000 | ₹ 27,000 | ₹ 24,000 |
| 17 | Accumulated series of deposits as future sum money is classified as | Annuity Fund | Sinking Fund | Marginal Fund | Nominal Fund |
| 18 | A Laptop depreciated in value each year at 15% of its previous value and at the end of fourth year, the value was ₹36,331. Find its original value. | ₹ 69,600 | ₹ 69,200 | ₹ 69,300 | ₹ 69,500 |
| 19 | What would be the value of the 9th term? | 66 | 68 | 59 | 61 |
| 20 | What would be the sum of the first 11 terms of the series? | 419 | 440 | 420 | 426 |
| 21 | Which term of the series would be 82? | 12 | 11 | 10 | 14 |
| 22 | Find the next 6 terms for the series: 128, 139, 150, 161, 172, 183. | 194, 205, 216, 228, 240, 252 | 194, 205, 217, 229, 242, 256 | 194, 205, 218, 231, 245, 259 | 194, 205, 216, 227, 238, 249 |
| 23 | For the given series: 66, 71, 76, 81, 86, 91, 96 ...666, 671, 676. With 'n' terms in the series, what will be the value of 'd' ? | -5 | 15 | -3 | 5 |
| 24 | The First term is 748, Last Term is 28, and the value between two consecutive terms is 9 deducted, find the number of terms in the series. | 9 | 8 | 10 | None of these |
| 25 | Identify the type of series: 1+2+3+4+5 : | H.P. | G.P. | Either of 'a' or 'b' | A.P |
| 26 | When a Bike had travelled for 78 km in 3 hours 45 minutes in the evening, how much distance would the Bike travelled in 2 hours? | 41.60 km | 48.88 km | 52 km | 55 km |
| 27 | A cycle travels a distance of 300 m in every second. What is the distance covered in an hour by the cycle? | 3000 km | 1080 km | 1800 km | 2160 km |
| 28 | y is the yardstick to measure the performance of two vehicles, where $y = \text{Speed} \times \text{Time} \times \text{Distance}$. If Time taken by one of the vehicle (1st Vehicle) is increased by 10%, what would be the impact on the yardstick? | No change | 1st vehicle would be better than 2nd Vehicle | 2nd Vehicle would be better than 1st Vehicle | None of the Above |
| 29 | If Toto covered 240 km at a speed of 40kmph while Scooty covered 180 km at a speed of 60 kmph, which one of them took less time to cover the distance and what was the time taken? | Scooty, 3 hrs | Toto, 6 hrs | Toto, 3 hrs. | Scooty, 6 hrs. |
| 30 | If A takes 3 hours to cover a distance of 60 km, B takes 2 hours to cover a | 6 hours | 12 hours | 15 hours | 3 hours |



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| | distance of 50 km, how much time would A take more than B to cover 300 km? | | | | |
| 31 | What will be the value of $(9^3)^2$? | 59004×9 | 59049×9 | 49005×9 | 49059×9 |
| 32 | What will be the value of $3^6 \times 3^4 \times 3^{-2} \times 3^{-3} \times 3^6$? | 3^{21} | 3^{16} | 3^{19} | 3^{11} |
| 33 | Evaluate $\frac{2^{1/3} \times 8^{2/3} \times 6^{-5/4} \times 3^{-3/4} \times 9}{\sqrt[3]{16}}$ | $\frac{1}{\sqrt[4]{2}}$ | 2 | $\sqrt[4]{2}$ | None of the above |
| 34 | Find the value of the logarithm of 2nd number (b) for 3 consecutive numbers (a, b, c). | $\log(1+ac)$ | $\frac{1}{2} \times 2 \times \log(1+ac)$ | $\frac{1}{2} \times \log(1+ac)$ | $2 \times \log(1+ac)$ |
| 35 | If $\log(7y-5) = 2$, find the value of y. | 15 | 10 | 8 | 7 |
| 36 | Compute $\frac{12!}{(8! \times 4!)}$ | 3960 | 495 | 99 | 440 |
| 37 | Find the number of permutations for 15 scooters if 3 scooters are to be considered at a time. | 2730 | 2370 | 2184 | 2814 |
| 38 | Find the value of a, if $(a-2)! \times 24 = (a+1)!$ | 0 | 2 | 4 | 3 |
| 39 | Find the square of the difference of the roots of $115 + 5(x^2 - 12x) = 0$ | 24 | 48 | 26 | 52 |
| 40 | When α and β are the roots of $5x^2 - 7x + 9 = 0$ then find the values of $\alpha + \beta + 4$ | $27/5$ | $29/5$ | $28/5$ | $24/5$ |
| 41 | In Venn diagram, Universal Set is represented by _____. | Stars | Squares | Rectangle | Circles |
| 42 | According to De Morgan's Law: $(B \cap C)' =$ _____. | $B' \cup C'$ | $B' \cap C'$ | $B \cup C'$ | $B' \cap C$ |
| 43 | What would be the factorial notation for: $11 \times 10 \times 9 \times 8 \times 7$ | $11! / 6!$ | $11! / 5!$ | $10! / 6!$ | $10! / 5!$ |
| 44 | How many ways can 8 people get vaccinated from 8 vaccinators, assuming no vaccinator is idle? | 40320 ways. | 5040 ways. | 5760 ways. | 35280 ways. |
| 45 | In how many different ways can 4 different cars, one of each of the 4 manufacturers, be parked in a parking lane? | 20 ways | 22 ways | 24 ways | 26 ways |
| 46 | For what values of a and b, the product of roots would be equal to c? | $a = c \neq b$ | $a \neq b = c$ | $a = 1$ | $a \leq 0$ |
| 47 | When are nature of roots real rather than imaginary? | If Discriminant is negative | If Discriminant is less than zero | If Discriminant is not a perfect square | If Discriminant is more than or equal to zero |
| 48 | For any sum of roots of quadratic equation, 'b' represents - | Coefficient of x | Constant term | Coefficient of x^2 | All of the above |



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| 49 | For any sum of roots of quadratic equation, 'a' represents - | Coefficient of x | Coefficient of x^2 | Constant term | None of the above |
| 50 | If $b^2 - 4ac > 0$, is a perfect square, the nature of roots would be | Real and Equal | Imaginary | Unreal | Real and Unequal |
| 51 | $\lim_{x \rightarrow 3}(x^3 + 1)$ | 52 | 53 | 55 | 54 |
| 52 | $\lim_{x \rightarrow 0}(4x^2 + 7x + 5)$ | 4 | 7 | 5 | 16 |
| 53 | $\lim_{x \rightarrow 0} \left(\frac{x^2 - 16}{x - 4} \right)$ | 2 | 4 | 8 | 6 |
| 54 | If $y = xe^x$ then $\frac{dy}{dx} = ?$ | xe^x | $e^x(x + 1)$ | $e^x(x - 1)$ | e^x/x |
| 55 | $f(x) = x^5/5 + x^4/4 + x^3/2 - 7x^2 + 18$. $f'(x) = ?$ | $x^4/4 + x^3/3 + 3x^2/2 + 14x$ | $x6/6 + x5/5 + x4/4 - 7x^3 + 18x$ | $x^4 - x^3 - 3x^2/2 + 14x$ | $x^4 + x^2 + 3x^2/2 - 14x$ |
| 56 | When $y = 4x$ then derivative of y is — | $x(4^{x-1})$ | $\frac{4^x}{2 \log 2}$ | $4^x \log 2$ | None of these |
| 57 | Find the differential coefficient of $y = e^x/e^x + 1$ | $e^x/(e^x + 1)^2$ | $e^{2x}/(e^x + 1)^2$ | $e^x/(e^{2x} + 1)^2$ | $e^x/(e^x + 2)^2$ |
| 58 | $y = (4x - 3)^3 + (5x - 2)^2$. Calculate y_1 | $182x^2 + 13x + 29$ | $96x^2 + 13x + 29$ | $12x^2 + 26x + 29$ | $192x^2 + 26x + 58$ |
| 59 | $\frac{x^2}{16} + \frac{y^2}{4} = 1$ is an implicit function. The derivative of this function is : | $\frac{x}{4y}$ | $-\frac{x}{4y}$ | $\frac{x}{2y}$ | $-\frac{x}{2y}$ |
| 60 | The result of differentiation of $y = \log [3x^2 + 13x + 10]$ is -- | $\frac{6x^2 + 13x}{3x^2 + 13x + 10}$ | $\frac{6x + 13}{3x^3 + 13x^2 + 10x}$ | $\frac{6x + 13}{3x^2 + 13x + 10}$ | $\frac{19}{6x + 13}$ |
| 61 | A soft-drink manufacturer has a revenue function $R = 7Q^2 - 19Q + 30$ and the cost function is given by $9Q$. Find the number of cans produced by the firm, under perfect competition. | 2 | 4 | 6 | 8 |
| 62 | A tin manufacturer has a revenue function given by: $R = 11Q^2 - 110Q + 70$ and the cost function is given by: $C = 22Q$. Find the number of tins to be produced by the manufacturer. | 2 | 6 | 10 | 14 |
| 63 | A demand function is given by: $P = a - bQ$ and the cost function is given by $C = Q^2$. Find the value of Q for which profit will be maximum under perfect competition. | $\frac{a}{(a + 1)}$ | $\frac{a}{2(b + 1)^2}$ | $\frac{a}{2(b + 1)}$ | $\frac{b}{2(a + 1)}$ |
| 64 | The demand function is given by: $P = 1400 - 25Q$ and the cost function is given by $C = 10Q^2$. Find the value of Q at the equilibrium point. | 10 | 20 | 30 | 40 |
| 65 | A revenue function is given by $R = 3Q^2 - 8Q + 15$ and the cost function is given by: $C = 28Q$. Find the value of | 3 | 9 | 6 | 12 |



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| | Q for achieving highest profit. | | | | |
| 66 | A demand function is given by: $P = 1500 - 3Q$ and the cost function is given by: $C = 12Q^2$. Find the value of Q at the equilibrium point. | 50 | 100 | 150 | 125 |
| 67 | A firm has a fixed production cost of ₹ 90 and a marginal variable production cost of ₹ 9. The price of the product is ₹18. Find the cost function, revenue function, and the value of Q at the Break Even point. | $2Q + 20; 9Q; 10$ | $9Q + 90; 18Q; 10$ | $4Q + 90; 36Q; 20$ | $Q + 10; 5Q; 50$ |
| 68 | A sugar industry has a fixed cost of ₹290 and a marginal cost of 50 paise. He sells sugar at the price of ₹15/kg. Find the quantity of sugar sold for breaking even. | 10 | 30 | 20 | 40 |
| 69 | A cotton mill has a fixed cost of ₹1540 and a marginal cost of ₹33. He sells a shirt at a price of ₹110. Find the minimum number of shirts sold so the mill incurs no loss. | 23 | 20 | 26 | 29 |
| 70 | Given: $C(x) = 900 + 30x + 0.6x^2$, $P = 90$. Find the value of x at equilibrium point. | 40 | 50 | 70 | 30 |
| 71 | Given: $C(x) = 2x^2 - 3x - 12$, $P = 33$. Find the value of x at equilibrium point. | 9 | 12 | 15 | 18 |
| 72 | Given: $R(x) = 3x^2 + 24x + 2$, $MC(x) = 42$ and the fixed cost is 90. Find the value of x at equilibrium point. | 2 | 3 | 7 | 11 |
| 73 | Given: $R(x) = 6x^2 - 11x - 35$, $C(x) = 5x^2 - 3x + 16$. Find the value of x for which profit is maximum. | 2 | 4 | 6 | 12 |
| 74 | Given: $R(x) = 20x^2 - 15x - 10$, $C(x) = x^2 + 99x + 27$. Find the value of x for which profit is maximum | 3 | 15 | 25 | 10 |
| 75 | Given: $R(x) = 3x^2 + 4x + 2$, $MC(x) = 16$ and the fixed cost is 24. Find the profit maximising value of x under perfect competition. | 1 | 3 | 4 | 2 |
| 76 | A manufacturer has a monthly fixed cost of ₹1, 00,000 and a production cost of ₹50 per unit produced. The product is sold at ₹75. Find the cost function and the number of products be sold by the manufacturer to have break even. | $25x + 50,000; 2000$ | $50x + 1,00,000; 4000$ | $5x + 1,00,000; 3000$ | $2.5x + 10,000; 5000$ |
| 77 | A cement industry has a yearly fixed cost of ₹96,000 and a monthly production cost of ₹13 per unit produced. The product is sold at ₹39 per unit. Find the cost function | $13x + 8000$ | $13x + 96,000$ | $39x + 96,000$ | $39x + 8000$ |
| 78 | Find the monthly profit function if a firm's yearly fixed cost is ₹60,000 and yearly production cost is ₹120 per piece. Each unit is sold at ₹15. | $\pi = 5x - 5000$ | $\pi(x) = 15x - 5000$ | $\pi(x) = 20x - 5000$ | $\pi(x) = 25x - 5000$ |



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| 79 | Given: $C(x) = 9x + 350$ and $P = 14$. Find the condition of getting break-even point | $5x - 350 = 0$ | $7x - 350 = 0$ | $-14x - 350 = 0$ | None of these |
| 80 | Given: $C(x) = 9x + 350$ and $P = 14$. find the break-even quantity | 50 | 70 | 110 | 100 |
| 81 | $f(x) = 6x^2 + 11x - 35$ | Maximum | Minimum | No Curvature | None of the above |
| 82 | $f(x) = -4x^2 - 7x - 35$ | Maximum | Minimum | No Curvature | None of the above |
| 83 | $f(x) = 20x^2 - 15x - 10$ | Maximum | Minimum | No Curvature | None of the above |
| 84 | $f(x) = 3x^2 - 4x + 2$ | Maximum | Minimum | No Curvature | None of the above |
| 85 | $f(x) = -x + 6x + 18$ | Maximum | Minimum | No Curvature | None of the above |
| 86 | $f(x) = 9x^2 - 6x + 1$ | Maximum | Minimum | No Curvature | None of the above |
| 87 | $f(x) = -x^2 + 4x - 2$ | Maximum | Minimum | No Curvature | None of the above |
| 88 | $f(x) = 3x^2 + 2$ | Maximum | Minimum | No Curvature | None of the above |
| 89 | $f(x) = x^2 - 3x$ | Maximum | Minimum | No Curvature | None of the above |
| 90 | $f(x) = ax^3 + bx^2 + cx + d$; $a < 0$; $b < 0$; $c > 0$ and $a < b$ | Maximum | Minimum | Minimum | Maximum |
| 91 | $f(x) = x^3/3 - 9x^2 + 81x + 70$ | Maximum, $x = 9$; Minimum, $x = 9$ | Minimum, $x = 3$; Maximum, $x = 5$ | No curvature | None of the above |
| 92 | $f(x) = (2/3)x^3 + (9/2)x^2 - 11x - 21$ | Maximum, $x = 2$; Minimum, $x = -9/2$ | Maximum, $x = -11/2$; Minimum, $x = 1$ | Maximum, $x = -3/2$; Minimum, $x = -3$ | No curvature |
| 93 | $f(x) = (4/3)x^3 - 5x^2 + 4x - 9$ | Maximum, $x = 4$; Minimum, $x = -3/2$ | Maximum, $x = 1/2$; Minimum, $x = 2$ | Maximum, $x = 2$; Minimum, $x = -1$ | No curvature |
| 94 | $f(x) = x^3 - 2x^2 - 4x$ | Maximum, $x = -2/3$; Minimum, $x = 2$ | Maximum, $x = 3/4$; Minimum, $x = 1$ | Maximum, $x = 3$; Minimum, $x = -1/3$ | No curvature |
| 95 | $f(x) = x^3/3 - 4.5x^2 - 8x + 2$ | Maximum, $x = 1$; Minimum, $x = 8$ | Maximum, $x = 4$; Minimum, $x = 2$ | Maximum, $x = 3$; Minimum, $x = -5$ | No curvature |
| 96 | $f(x) = x^3/3 - 3/2x^2 + 2x - 3$ | Maximum, $x = 3$; Minimum, $x = 5$ | Maximum, $x = 1$; Minimum, $x = 2$ | Maximum, $x = 6$; Minimum, $x = 1$ | No curvature |
| 97 | $f(x) = 2/3x^3 - 3/2x^2 - 5x$ | Maximum, $x = -1$; Minimum, $x = 5/2$ | Maximum, $x = 1$; Minimum, $x = 3$ | Maximum, $x = -1$; Minimum, $x = -3/2$ | No curvature |
| 98 | $f(x) = -x^3/3 + 4x^2 - 15x$ | Maximum, $x = 1$; Minimum, $x = 3$ | Maximum, $x = 5$; Minimum, $x = 3$ | Maximum, $x = -3$; Minimum, $x = -5$ | No curvature |
| 99 | $f(x) = x^3/3 - x^2/2 - 2x$ | Maximum, $x = -1$; Minimum, $x = 2$ | Maximum, $x = 1$; Minimum, $x = -2$ | Maximum, $x = -3$; Minimum, $x = 5$ | No curvature |
| 100 | $f(x) = x^2/3 + 2x^2 + 3x + 7$ | Maximum, $x = -3$; Minimum, $x = -1$ | Maximum, $x = 1/2$; Minimum, $x = 2$ | Maximum, $x = 1$; Minimum, $x = 4$ | No curvature |
| 101 | The word 'Statistics' has been derived from the Latin word 'Status' which means : | A numerical state | A mathematical state | A neutral state | A political state |
| 102 | Which one of the following has synonymous words? | Status, Staistik, Statista | Staistik, Statista, Stats | Statistic, Statistia, Stats | Statistic, Statistia, Status |
| 103 | Statistics is a tool in the hands of mankind : | To translate complex facts into simple and understandable statements of facts | To translate statistical information into mathematical statements of facts | To translate business information into simple and understandable statements of facts | To translate complex facts into presentable forms through tables and diagrams |
| 104 | The word statistics in plural form means : | The science of statistics that collect data in a systematic manner with some definite aim or object towards further analysis in graphical way | The numerical data collected in a systematic manner with some definite aim or object in view such as the number of persons unemployed in a country. | The numerical data collected in a systematic manner for analysing the state of affairs with the help of mathematical applications | The science of statistics that deals with the principles, devices or statistical methods of collecting, analyzing and interpreting numerical data |
| 105 | The word statistics in singular form means : | The science of statistics that collect | The numerical data collected in a systematic | The numerical data collected in a | The science of statistics that deals |



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| | | data in a systematic manner with some definite aim or object towards further analysis in graphical way | manner with some definite aim or object in view such as the number of persons unemployed in a country. | systematic manner for analysing the state of affairs with the help of mathematical applications | with the principles, devices or statistical methods of collecting, analyzing and interpreting numerical data |
| 106 | Which one of the following is not a characteristic of Plural form of Statistics? | Statistics should be collected for a pre-determined purpose | Statistics should be enumerated or estimated | Statistics are always graphically expressed | Statistics are affected by a large number of causes |
| 107 | Statistics in singular sense has : | 5 stages | 6 stages | 2 stages | 4 stages |
| 108 | Measurement of skewness is : | Analysis of data | Presentation of data | Organisation of data | Interpretation of data |
| 109 | Find the odd man out from the following : | Regression | Kurtosis | Sampling | Central Tendency |
| 110 | Raw data is : | Information which can be interpreted to take decision | Information which can't be put to use directly | Information which is not amenable to conversion | Information which are useless |
| 111 | There are four person named A, B, C, & D. A is a sales person whereas B, C, D are students. A collected sales figures for his region and B, C, D used these data in order to study sales pattern. Which one of the following is correct? | B uses secondary data | A & B both are using primary data | A, B, C, D all are using secondary data | B, C, D are using primary data |
| 112 | Which one of the following is a method of collecting primary data? | Information collected through newspapers and periodicals | Information obtained from the publications of trade associations | Information collected by Government through Census | Information gathered from research paper published in research journal |
| 113 | Classification of data is : | The process of arranging things in groups or classes according to their common frequencies | The process of arranging things in groups or classes according to their common characteristics and affinities | The process of arranging things in groups or classes according to their common differences and tally marks | The process of arranging things in groups or classes according to their common deviations from respective mean |
| 114 | In Statistics classification : | Separates data into different unrelated parts | Separates data into different dispersed groups | Separates data into different but related parts | Separates data into different modal groups |
| 115 | Which one of the following is a characteristic of a good classification? | Classification should be heterogeneous | Classified groups must have overlapping data | Classification should be stable | Classification should be inclusive |
| 116 | When the basis of classification is according to differences in time it is called | Temporal Classification | Quantitative Classification | Spatial Classification | Qualitative Classification |
| 117 | Dichotomous Classification is : | When data is classified according to presence or absence of two attributes | When data is classified into two groups containing all the attributes | When data is classified according to presence of two attributes | When data is classified into two groups according to presence or absence of one attribute |
| 118 | Tabulation Condenses classified data so that: | Data may be more easily understood | Data may be easily presented textually | Data may be more easily synchronized | More comprehensive secondary result could be obtained |
| 119 | Tabulation is preferred to textual presentation because : | Tabulation never compares between rows and columns | Tabulation is a must for diagrammatic representation | Tabulation does not require complex statistical analysis | Tabulation always get constructed with simple data |
| 120 | With respect to accuracy : | Diagrammatic presentation is preferable to Tabular presentation | Textual presentation is preferable to diagrammatic presentation | Tabular presentation is preferable to Diagrammatic presentation | Textual presentation is preferable to Tabular presentation |
| 121 | Which one of the following is a | Geometric Mean; | Harmonic Mean; | Mode; | Progressive Average; |



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| | Positional Average? | | | | |
| 122 | Because of heavy rain on Sunday average rainfall of a city for the week increased to 0.6 inch from the average rainfall 0.3 inch measured from Monday to Saturday. The rainfall on Sunday was- | 2.4 inch; | 0.3 inch; | 2.1 inch; | 1.5 inch |
| 123 | The mean of the frequency distribution ((x f ₁ , 1), (x ₂ , f ₂), (x ₃ , f ₃).....(x _n , f _n)) is : | $\Sigma x / \Sigma f$ | $\Sigma x / n$ | $\Sigma fx / n$ | $\Sigma fx / \Sigma f$ |
| 124 | $\sum_{x=1}^{20} x = 54120$; While computing this, it was observed that two entries were wrongly entered as 850 and 320 instead of 580 and 230. Correct value of \bar{x} is: | 2688; | 2746.5; | 2720; | 2662; |
| 125 | $\Sigma(X - \bar{X})$ is always equal to : | 1; | -1; | 0; | ∞ ; |
| 126 | The sum of the squares of deviations of a set of observations is the minimum when deviations are taken from the : | Geometric Mean; | Harmonic Mean; | Arithmetic Mean; | Mode; |
| 127 | If each of the values of a variable x with mean of \bar{x} , is multiplied by K then the new mean of the variable is : | \bar{x}/k | $k\bar{x}$ | \bar{x} | \bar{kx} |
| 128 | Assumed mean is 35, $\Sigma fd = -425$ & $\Sigma f = 63$. \bar{x} is: | 20 | 25.87 | 28.25 | 19.34 |
| 129 | If $A = 500$, $i = 1000$ & $\Sigma fd' = 232$ & $\Sigma f = 120$ \bar{x} is : | 2433.33 | 527.84 | 501.93 | 1017.24 |
| 130 | The mean daily salary paid to all employees in a certain company was ₹600. The mean daily salaries paid to the male and female employees were ₹620 and ₹520 respectively. Male to female employees ratio in the company is : | 3:2; | 4:5 | 5:7; | 4:1; |
| 131 | The pass result of 50 students who took up a class test is given below: Marks : 4 5 6 7 8 9 No of Students : 8 10 9 6 4 3 | 0.42 | 3.06 | 4.74 | 2.1 |
| 132 | For a certain frequency table which has only been partly reproduced below for which the mean is 1.46 No of accidents: 0 1 2 3 4 5 Frequency : 46 f ₁ f ₂ 25 10 5 If $\Sigma f = 200$ Unknown frequents are : | $f_1 = 0, f_2 = 114$ | $f_1 = 114, f_2 = 0$ | $f_1 = 76, f_2 = 38$ | $f_1 = 57, f_2 = 57$ |
| 133 | The sum of the deviations of a certain number of observations measured from 4 is 72 and the sum of the deviations of the observations from 7 is -3. Mean of the observations is | 6.88 | 25 | 3.63 | Cannot be ascertained with given data; |
| 134 | The mean of a certain number of items is 42. If one more item 64 is | 20 | 10 | 43 | 440 |



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| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|---|---|--|---|---|
| | added to the data, the mean becomes 44. The no of items in the original data is | | | | |
| 135 | The weighted average from the following observation is ₹46.23. Price per tonne (₹) : 45.60 50.70? Tonnes Purchased : 135 40 25 Simple average of observation is | ₹ 46.23 | ₹ 46.26 | ₹ 66.63 | ₹ 46.24 |
| 136 | In a certain factory a unit of work is completed by A in 4 minutes, by B in 5 minutes, by C in 6 minutes, by D in 10 minutes, and by E in 12 minutes. Average number of units of work completed per minute is | 25/4 | 5/48 | 4/25 | 25/48 |
| 137 | A person walks 8 km at 4km an hour, 6km at 3km an hour and 4km at 2km an hour. Average speed per hour is | 0.33 | 2 | 3 | 0.5 |
| 138 | It is the most suitable average when it is desired to give greater weight to smaller observations and less weight to larger ones. It is | AM | HM | GM | Median |
| 139 | Which one of the following is not a feature of Arithmetic Mean (AM)? | AM is affected very much by extreme values; | AM is widely used in the study of qualitative phenomenon; | AM provides a good basis for comparison; | AM is rigidly defined so different interpretation by different people are not possible; |
| 140 | Which one of the following is a feature of Harmonic Mean (HM)? | GM is affected much by the presence of externally small or large observations; | GM gives the actual value of the series; | GM is useful when a given phenomenon has a limit for lower value; | GM is imaginary if any of the observations is zero; |
| 141 | If b_{XY} and b_{YX} are regression coefficients of series X on series Y and regression coefficients of series Y on series X respectively then which one of the following is correct? | $b_{XY} \times b_{YX} = r$, where r is the correlation coefficient | $b_{XY} \times b_{YX} = r^2$, where r is the correlation coefficient | $b_{XY} \times b_{YX} = -r$, where r is the correlation coefficient | $b_{XY} \times b_{YX} = 1/r$, where r is the correlation coefficient |
| 142 | If b_{XY} and b_{YX} are regression coefficients of series X on series Y and regression coefficients of series Y on series X respectively then which one of the following is correct? | b_{XY} and b_{YX} will be either both positive or both negative | b_{XY} will be positive and b_{YX} will be negative | b_{XY} will be negative and b_{YX} will be positive | Nothing can be said like this, it depends on X & Y values |
| 143 | Which one of the following is correct? | Regression equation predicts maximum probable values of one variable for specified values of other variable | Regression equation predicts most likely values of one variable for specified values of other variable | Regression equation predicts maxi-min values of one variable for specified values of other variable | Regression equation predicts minimum probable values of one variable for specified values of other variable |
| 144 | If $r = 0.52$, $\sigma_X = 4.6$ & $\sigma_Y = 36.8$ then b_{XY} is equal to: | 0.24 | 4.16 | 1 | 0.065 |



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|-------|---|---|---|---|---|
| 145 | If b_{XY} & b_{YX} are regression coefficients between X on Y and Y on X respectively and r is the correlation coefficient between X and Y then : | $\frac{b_{xy} + b_{yx}}{2} \leq r$ | $\frac{b_{xy} + b_{yx}}{2} \leq r^2$ | $\frac{b_{xy} + b_{yx}}{2} \geq r$ | $\frac{b_{xy} + b_{yx}}{2} \geq r^2$ |
| 146 | If b_{XY} & b_{YX} are regression coefficients between X on Y and Y on X respectively then | $\sqrt{b_{xy} \times b_{yx}} \leq 1$ | $\sqrt{b_{xy} \times b_{yx}} \geq 1$ | $\sqrt{b_{xy} \times b_{yx}} = -1$ | None of the above |
| 147 | In a regression equation: | Regression coefficient represents the increment in the value of the independent variable for a unit change in the value of the dependent variable | Regression coefficient represents the increment in the value of the dependent variable for a unit change in the value of the independent variable | Regression coefficient represents the mean value of the independent variable for a unit change in the value of the dependent variable | Regression coefficient represents the mean value of the dependent variable for a unit change in the value of the independent variable |
| 148 | If $r^2 = 0.3$ & $b_{XY} = -1.5$ then b_{YX} is equal to : | + 1 | - 0.2 | - 1 | - 0.45 |
| 149 | In a bivariate regression analysis $\Sigma XY = 1355.25$, $(\Sigma X)(\Sigma Y) = 6396$, $\Sigma X^2 = 591.50$ & $\Sigma X = 52$. If there are 5 items then b_{YX} | 1 | 0.97 | 0.667 | 1.5 |
| 150 | $X = 1.36Y - 5.2$ & $Y = 0.61X + 1.51$ are two regression equations. Correlation coefficient between X & Y is : | -. 0.67 | -. 0.911 | 0.911 | 0.67 |
| 151 | In a bivariate regression analysis comprising of series X & Y, if $\Sigma(X - \bar{X})^2 = \Sigma(Y - \bar{Y})^2$ then : | $b_{XY} = b_{YX}$ | $b_{XY} > b_{YX}$ | $b_{XY} < b_{YX}$ | Correlation co-efficient = 1 |
| 152 | In a bivariate regression analysis, the difference between actual value of dependent variable and the predicted value of the dependent variable is called | Outlier | Slope | Residual | Scattered point |
| 153 | Consider the following results: $N = 12$, $\Sigma dx = 0$, $\Sigma dy = 4$, $\Sigma dx^2 = 1344$, $\Sigma dy^2 = 215$, $\Sigma dxdy = -4360$ Appropriate regression coefficient is - | - 0.821 | 1 | 5.67 | -3.244 |
| 154 | In a bivariate regression analysis for dependent variable if d = Actual value - Predicted value then at different values of independent variable | Best fit curve occurs when $d_1^2 + d_2^2 + \dots \dots \dots + d_n^2$ is minimum | Best fit curve occurs when $d_1^2 + d_2^2 + \dots \dots \dots + d_n^2$ is maximum | Best fit curve occurs when $d_1^2 + d_2^2 + \dots \dots \dots + d_n^2$ is zero | Best fit curve occurs when $d_1^2 + d_2^2 + \dots \dots \dots + d_n^2$ is one |
| 155 | Consider the following results: $N = 6$, $\Sigma y = 42$, $\Sigma y^2 = 318$, $b_{yx} = -11/34$, $\Sigma x^2 - 1/n(\Sigma x)^2 = 34$ Then b_{xy} is | 11/34 | 11/24 | -34/11 | -11/24 |
| 156 | In a bivariate analysis if two regression equations are $mx - y + 10 = 0$ & $-2x + 5y = 14$. If coefficient of correlation between x & y is $\frac{1}{\sqrt{10}}$. then value of m | 10 | $\frac{5}{2}$ | 4 | 1 |



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| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|--|---|---|---|---|
| | is: | | | | |
| 157 | In a bivariate analysis if two regression equations are $8x - 10y + 66 = 0$ & $40x - 18y - 214 = 0$. Then \bar{x} , \bar{y} , the mean of the series \bar{x} & \bar{y} are respectively : | 13,17 | 17,17 | 5/4.20/9 | 8,18 |
| 158 | Probability theory is often referred to as : | Science of prediction | Science of uncertainty | Science of chance | Science of decision making |
| 159 | In general probability is : | A numerical value between 0 and 1, exclusive, describing the absolute possibility an event will occur | A numerical value between 0 and 1, inclusive, describing the absolute possibility an event will occur | A numerical value between 0 and 1, exclusive, describing the relative possibility an event will occur | A numerical value between 0 and 1, inclusive, describing the relative possibility an event will occur |
| 160 | The probability of two events A and B are 0.05 and 0.95 respectively. We can infer that | Event A is more probable to happen | Event B is more improbable to happen | Event B is more probable to happen | Event A & B are sure to happen |
| 161 | “Sun will disappear from blue sky today forever”. With our available information & belief which one of the following value is most appropriate as probability to this event? | 0.2 | 0.8 | 1 | 0 |
| 162 | For an event Odds in favour are “five to two” This means that : | In a total of seven trials the event will occur five times : | In a total of seven trials the event will occur two times | In a total of five trials the event will occur two times | In a total of seven trials the event will not occur five times |
| 163 | Classical probability is based on the assumption that : | The outcomes of an experiment are already known | The probability of an outcome of an experiment is always 0.5 | The probability of all outcomes in an experiment is always 1 | The outcomes of an experiment are equally likely |
| 164 | If an experiment has a set of events that includes every possible outcomes, then the set is called : | Mutually Exclusive set | Mutually Exhaustive set | Collectively Exhaustive set | Exhaustive & Exclusive set |
| 165 | Classical probability is : | Probability of an event = Number of favourable outcome/Total number of possible outcome | Probability of an event = Number of favourable outcome/Total number of trails | Probability of an event = Number of possible outcome/Total number of trails | Probability of an event = Number of trails/ number of possible outcome |
| 166 | Addition rule for mutually exclusive events A & B is : | $P(A \text{ or } B) = P(A) + P(B)$ | $P(A \text{ or } B) = P(A+B)$ | $P(A \text{ or } B) = P(A) + P(B) - P(AB)$ | $P(A \text{ or } B) = P(A+B - AB)$ |
| 167 | If two unbiased coins are tossed once, the probability of getting both the heads is | 0.25 | 0.5 | 0.75 | 1 |
| 168 | The probability that a leap year selected at random contain 53 Sundays is : | 0.143 | 1 | 0.286 | 0.48 |
| 169 | A lot contains 10 items of which 3 are defective. Three items are chosen from the lot at random one after another without replacement. The probability that all the three are defective is | 0.008 | 0.992 | 0.067 | 0.05 |



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|-----------|---|---|---|--|--|------|----|----|---|-------|----|----|---|--------|--------|--------|--------|
| 170 | If $P(A) = 0.3, P(B) = 0.2$ and $P(C) = 0.1$, then assuming A, B and C are independent events, the probability of occurrence of at least one of the three events is : | 0.7 | 0.8 | 0.006 | 0.496 | | | | | | | | | | | | |
| 171 | In IPL Kolkata Knight Riders plays 70% of their games at night (8 O'clock slot) and 30% during the day (4 O'clock slot). The team wins 50% of their night games and 90% of their day games. According to today's newspaper they own yesterday. The probability that the game was played at night is : | 0.4667 | 0.5645 | 0.35 | 0.5 | | | | | | | | | | | | |
| 172 | When two events happen simultaneously which of the following is true? | The outcome of the first event always have an effect on the outcome of the second event | The outcome of the first event may or may not have an effect on the outcome of the second event | The outcome of the first event does not have any effect on the outcome of the second event | The outcome of the first event have always a 50% effect on the outcome of the second event | | | | | | | | | | | | |
| 173 | A survey by Air travelers' association revealed that 60% of its member made airline reservations last year. Two members are selected at random. The probability that both the members made airline reservations last year is : | 0.6 | 0.4 | 0.36 | 0.16 | | | | | | | | | | | | |
| 174 | If an unbiased coin is tossed once, then the two events head and tail are: | Mutually exclusive | Exhaustive | Equally likely | All these | | | | | | | | | | | | |
| 175 | Sum of probability of an event A and its complement is ___ | 1 | 0 | 1/2 | -1/2 | | | | | | | | | | | | |
| 176 | If p: q are the odds in favour of an event, then the probability of that event is : | p/q | p/(p + q) | q/(p + q) | None of these | | | | | | | | | | | | |
| 177 | A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. The probability that the number of the drawn ball will be multiple of 3 or 7 is : | 7/15 | 13/30 | 1/2 | None of these | | | | | | | | | | | | |
| 178 | Three coins are tossed together. The probability of getting exactly two heads is : | 5/8 | 3/8 | 1/8 | None | | | | | | | | | | | | |
| 179 | Two dice are thrown together. The probability of the event that the sum of numbers shown is greater than 5 is: | 13/18 | 15/18 | 1 | None | | | | | | | | | | | | |
| 180 | Probability of throwing an even number with an ordinary six faced die is : | 1/2 | 1 | 0 | -1/2 | | | | | | | | | | | | |
| 181 | 4 coins are tossed. The probability that there are 2 heads is : | 1/2 | 3/8 | 1/8 | None of these | | | | | | | | | | | | |
| 182 | A bag contains 10 red and 10 green balls. A ball is drawn from it. The probability that it will be green is : | 1/10 | 1/3 | 1/2 | None of these | | | | | | | | | | | | |
| 183 | By using arithmetic mean method the index number from the following data is <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Commodity</th> <th>Base price</th> <th>Current price</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>Rice</td> <td>30</td> <td>52</td> <td>8</td> </tr> <tr> <td>Wheat</td> <td>25</td> <td>30</td> <td>6</td> </tr> </tbody> </table> | Commodity | Base price | Current price | Weight | Rice | 30 | 52 | 8 | Wheat | 25 | 30 | 6 | 144.92 | 202.34 | 161.87 | 115.22 |
| Commodity | Base price | Current price | Weight | | | | | | | | | | | | | | |
| Rice | 30 | 52 | 8 | | | | | | | | | | | | | | |
| Wheat | 25 | 30 | 6 | | | | | | | | | | | | | | |



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|-------|---|----------|--------------|----------|--------------|--|--|------------|------|------------|------|---|---|----|----|----|----|----|----|----|----|-----|----|----|----|----|--------|--------|--------|--------|
| | Fish 130 150 3 Potato 35 49 5 Oil 70 105 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 184 | From the data given below the wholesale price index number for the year 1 taking year 0 as base using simple arithmetic average of relatives method is : Commodity Price year Price year 0 1 A 80 120 B 120 150 C 40 80 D 100 150 E 200 240 | 180 | 112 | 134 | 149 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185 | Consider the following: Year: 1 2 3 4 5 6 7 8 Annual Sales (₹ '0000) 3.6 4.3 4.3 3.4 4.4 5.4 3.4 2.4 5 year moving average against year 4 is : | 3.8 | 4 | 4.36 | 4.18 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 186 | Consider the following: Year: 1 2 3 4 5 6 7 8 Annual Sales (₹'0000) 3.6 4.3 4.3 3.4 4.4 5.4 3.4 2.4 4 year centered moving average against year 6 is : | 4.00 | 4.24 | 4.26 | 4.03 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 187 | Consider the following table: <table style="margin-left: 20px;"> <thead> <tr> <th>Item</th> <th colspan="2">Year 1</th> <th colspan="2">Year 2</th> </tr> <tr> <th></th> <th>Unit Price</th> <th>Qty.</th> <th>Unit Price</th> <th>Qty.</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>1</td> <td>16</td> <td>3</td> <td>15</td> </tr> <tr> <td>II</td> <td>3</td> <td>15</td> <td>8</td> <td>20</td> </tr> <tr> <td>III</td> <td>5</td> <td>18</td> <td>10</td> <td>21</td> </tr> </tbody> </table> Pasche's price index of year 2 with respect to year 1 is | Item | Year 1 | | Year 2 | | | Unit Price | Qty. | Unit Price | Qty. | I | 1 | 16 | 3 | 15 | II | 3 | 15 | 8 | 20 | III | 5 | 18 | 10 | 21 | 189.13 | 230.56 | 245.12 | 256.78 |
| Item | Year 1 | | Year 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Unit Price | Qty. | Unit Price | Qty. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I | 1 | 16 | 3 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| II | 3 | 15 | 8 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| III | 5 | 18 | 10 | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 188 | Fisher's ideal index for prices from the following data is: <table style="margin-left: 20px;"> <thead> <tr> <th>Item</th> <th colspan="2">Base Year</th> <th colspan="2">Current Year</th> </tr> <tr> <th></th> <th>Unit Price</th> <th>Qty.</th> <th>Unit Price</th> <th>Qty.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>8</td> <td>6</td> <td>12</td> <td>5</td> </tr> <tr> <td>B</td> <td>10</td> <td>5</td> <td>11</td> <td>6</td> </tr> <tr> <td>C</td> <td>15</td> <td>8</td> <td>10</td> <td>5</td> </tr> </tbody> </table> | Item | Base Year | | Current Year | | | Unit Price | Qty. | Unit Price | Qty. | A | 8 | 6 | 12 | 5 | B | 10 | 5 | 11 | 6 | C | 15 | 8 | 10 | 5 | 97.72 | 80.15 | 95.67 | 89.14 |
| Item | Base Year | | Current Year | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Unit Price | Qty. | Unit Price | Qty. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 8 | 6 | 12 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 10 | 5 | 11 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C | 15 | 8 | 10 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 189 | Consider the following series of observation: Year 1 2 3 4 5 6 7 8 9 10 11 Sales (₹) 2 6 1 5 3 7 2 6 4 8 3 4 year centered moving average against year 6 is | 5.125 | 3.875 | 3.625 | 4.375 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 190 | Consider the following series of observation. Year 1 2 3 4 5 6 7 8 9 10 11 Sales (₹) 2 6 1 5 3 7 2 6 4 8 3 5 year weighted moving average with weights 1, 2, 2, 2, 1 against year 6 is | 5.125 | 3.875 | 3.625 | 4.375 | | | | | | | | | | | | | | | | | | | | | | | | | |



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|-------|---|----------|----------|----------|----------|
| 191 | Consider the following series of observation. Year 1 2 3 4 5 6 7 8 9 10 11 Sales (₹) 2 6 1 5 3 7 2 6 4 8 3 5 year moving average against year 6 is: | 3.6 | 4.6 | 4.4 | 5.4 |
| 192 | Consider the following: Commodity Base Current Weight Price Price (₹) (₹) A 22 40 8 B 15 15 6 C 80 90 7 D 110 130 3 E 25 30 5 Weighted aggregative index number is : | 123.34 | 156.11 | 176.52 | 142.89 |
| 193 | Consider the following: Commodity Base Current Weight Price Price (₹) (₹) A 22 40 8 B 15 15 6 C 80 90 7 D 110 130 3 E 25 30 5 Weighted A.M of price relative index number is | 123.34 | 128.79 | 130.92 | 182.13 |
| 194 | From the following find the Fisher's Quantity index Item Base Year Current Year Unit Price Qty. Unit Price Qty. A 8 6 12 5 B 10 5 11 6 C 17 8 8 5 | 32.76 | 72.34 | 78.12 | 12.74 |
| 195 | From the following find the Simple average (AM) of Relative Quantity index Item Base Year Qty. Current Year Qty. A 8 12 B 10 11 C 15 10 | 111.45 | 108.89 | 32.45 | 115.46 |
| 196 | From the following find the Simple average (GM) of Relative Quantity index Item Base Year Qty. Current Year Qty. A 8 12 B 10 11 C 15 10 | 100.23 | 111.45 | 190.15 | 103.23 |



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|-------|--|----------|----------|----------|----------|
| 197 | From the following data the five year moving average against year 5 Year 1 2 3 4 5 6 7 8 9 Sales (₹) 36 43 43 34 44 54 34 24 14 | 40 | 43.6 | 34 | 41.8 |
| 198 | From the following data the four year centered moving average against year 6 Year 1 2 3 4 5 6 7 8 9 Sales (₹) 36 43 43 34 44 54 34 24 14 | 40.25 | 40.625 | 35.25 | 40 |
| 199 | From the following series find out a three year moving average against year 4 is Year 1 2 3 4 5 6 7 Values 12 14 15 17 18 20 23 | 20.33 | 18.33 | 16.67 | 15.33 |
| 200 | From the following series find out a three year weighted moving average against year 4 with weights 1,4,1 is : Year 1 2 3 4 5 6 7 Values 12 14 15 17 18 20 23 | 20.17 | 16.83 | 18.17 | 15.17 |
| 201 | Consider the following table: Commodity Weights Base price Current price p.u. p.u. (₹) (₹) A 40 16 30 B 25 40 70 C 5 0.5 1.5 D 20 5.12 7.25 E 10 2 2.5 Weighted A.M price relative index is | 146.98 | 174.7 | 124.33 | 156.01 |
| 202 | From the following four year centered moving average against year 4 is Year 1 2 3 4 5 6 7 Import (₹ m) 229 231 206 191 195 184 193 | 190.671 | 199.875 | 192.375 | 210 |
| 203 | If $a : b = 3 : 4$ and $b : c = 8 : 9$, then what is $a : b : c$? | 6:8:9 | 6:7:8 | 3:4:9 | 3:8:9 |
| 204 | If $x : y = 5 : 7$ and $y : z = 14 : 15$, find $x : z$. | 10:21 | 10:15 | 10:30 | 5:15 |
| 205 | A sum of ₹480 is divided among A, B, and C such that A's share : B's share = 3 : 5 and B's share : C's share = 10 : 12. Find C's share. | ₹ 180 | ₹ 205 | ₹ 240 | ₹ 192 |
| 206 | If the mean proportional between 9 and x is 15, find x. | 25 | 20 | 18 | 30 |
| 207 | A sum of ₹10,000 is invested at 8% per annum compound interest, compounded annually. What will be the amount after 3 years? | ₹ 12,597 | ₹ 12,697 | ₹ 12,850 | ₹ 12,750 |



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|-------|--|----------|-----------|----------|-----------|
| 208 | If ₹5,000 is invested for 4 years at 10% per annum simple interest, what is the total interest earned? | ₹ 2,400 | ₹ 2,500 | ₹ 2,200 | ₹ 2,000 |
| 209 | A person wants to have ₹20,000 in 3 years. If the bank offers 8% per annum compound interest, what amount should he invest now? | ₹ 15,974 | ₹ 16,877 | ₹ 15,875 | ₹ 14,900 |
| 210 | If ₹12,000 is invested for 2 years at compound interest and the total amount is ₹13,824, what is the rate of interest per annum? | 7.35% | 8% | 8.50% | 9% |
| 211 | The 12th term of an AP is 45, and the 20th term is 77. What is the common difference? | 2 | 5 | 6 | 4 |
| 212 | The 5th term of a GP is 64 and the 8th term is 512. Find the common ratio. | 2 | 3 | 4 | 5 |
| 213 | If the sum of the first n terms of an AP is $S_n = 3n^2 + 2n$, what is the 10th term? | 62 | 65 | 59 | 67 |
| 214 | A person covers a certain distance at a speed of 40 km/h and returns at a speed of 60 km/h. What is his average speed for the entire journey? | 48 km/h | 50 km/h | 49 km/h | 45 km/h |
| 215 | Two trains start from two stations 250 km apart and move towards each other at speeds of 60 km/h and 40 km/h respectively. They cross after how much time? | 2 hours | 2.5 hours | 3 hours | 3.5 hours |
| 216 | A boat goes 30 km upstream in 2 hours and returns downstream in 1.5 hours. Find the speed of the stream. | 3 km/h | 4 km/h | 2.5 km/h | 6 km/h |
| 217 | A train running at 54 km/h crosses a pole in 30 seconds. What is the length of the train in meters? | 300 | 450 | 540 | 600 |
| 218 | In a group of 60 students, 25 like cricket, 30 like football, and 10 like both. How many students like neither cricket nor football? | 5 | 10 | 15 | 20 |
| 219 | In a class of 50 students, 28 play basketball, 22 play volleyball, and 10 play both. How many play exactly one sport? | 30 | 40 | 50 | 60 |
| 220 | In a class, 60 students took exams in math or science. 40 passed math, 35 passed science, and 10 passed both. How many passed only science? | 15 | 20 | 25 | 30 |
| 221 | If $3^{x+1} = 81$, find the value of x. | 3 | 4 | 5 | 2 |
| 222 | If $\log_2 8 + \log_2 4 = ?$ | 5 | 6 | 7 | 8 |
| 223 | If $\log_a 36 = 2 + \log_a 6 = 1$ | 2 | 3 | 4 | 6 |
| 224 | If $\log_5 X + \log_5 (X-4) = 1$, find X. | 5 | 6 | 7 | 8 |
| 225 | If $3^{2x} \times 9^{x-1} = 729$, find X. | 3 | 4 | 5 | 2 |
| 226 | The number of ways to arrange the letters of the word "BALLOON" is: | 5040 | 2520 | 1260 | 720 |
| 227 | How many ways can 5 books be arranged on a shelf if 2 specific books must not be together? | 72 | 100 | 120 | 60 |



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FUNDAMENTALS OF BUSINESS MATHEMATICS AND STATISTICS (PAPER - 3)

MCQ BANK

| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|---|--|---|---------------------------------------|------------------------------------|
| 228 | From a group of 8 men and 6 women, a committee of 4 is to be formed such that at least 2 women are included. How many such committees are possible? | 695 | 670 | 610 | 595 |
| 229 | How many 4-digit numbers can be formed using digits 1,2,3,4,5 without repetition? | 120 | 625 | 240 | 256 |
| 230 | How many different committees of 3 men and 2 women can be formed from 6 men and 5 women? | 250 | 150 | 200 | 300 |
| 231 | From 10 persons, in how many ways can a president, secretary, and treasurer be chosen? | 720 | 1000 | 7200 | 900 |
| 232 | How many ways can 6 students be seated in a row if 2 particular students must sit together? | 240 | 144 | 360 | 120 |
| 233 | From a set of 7 different books, in how many ways can 3 be selected and arranged on a shelf? | 250 | 210 | 343 | 170 |
| 234 | If the quadratic equation $2x^2 + kx + 8 = 0$ has equal roots, then the value of k is: | 4 | ± 8 | $\pm 4\sqrt{2}$ | $\pm 8\sqrt{2}$ |
| 235 | If α and β are roots of $3x^2 - 5x + 2 = 0$, then the value of $\alpha^3 + \beta^3$ is: | 30/20 | 35/9 | 41/9 | 35/27 |
| 236 | The quadratic equation $x^2 - 6x + k = 0$ will have real and distinct roots if: | $k > 9$ | $k = 9$ | $k < 9$ | $k \leq 9$ |
| 237 | If one root of $2x^2 + 3x + k = 0$ is double the other, then k equals: | 1/2 | 1 | 4 | 2 |
| 238 | If the total cost function of producing x units is $C = 5x^2 + 20x + 100$, then the marginal cost at $x = 10$ units is: | 120 | 200 | 60 | 100 |
| 239 | If the demand function is $p = 100 - 2x$, find the marginal revenue when $x = 20$. | 60 | 20 | 40 | 0 |
| 240 | For the profit function $P(x) = -2x^2 + 40x - 100$, the maximum profit occurs at $x =$: | 5 | 8 | 10 | 12 |
| 241 | If total cost $C(x) = 100 + 10x + 0.5x^2$, find the rate of change of average cost when $x = 10$. | -0.5 | 0 | 0.5 | 1 |
| 242 | A firm's marginal cost $MC = 3x^2 - 6x + 4$. If fixed cost = 20, find the total cost function. | $x^3 - 3x^2 + 4x + 20$ | $x^3 - 2x^2 + 4x + 20$ | $x^3 - 3x^2 + 2x + 20$ | $x^3 - x^2 + 4x + 20$ |
| 243 | A histogram has unequal class intervals. Which of the following represents the height of the bars correctly? | Height = Frequency | Height = Frequency \times Class width | Height = Frequency \div Class width | Height = $\sqrt{\text{Frequency}}$ |
| 244 | The ogive of a distribution is rising steeply in the middle range and flat at both ends. This indicates: | Most data concentrated in the middle classes | Data skewed to the left | Data skewed to the right | Uniform distribution |
| 245 | The cumulative frequency curve can be used to determine: | Mean only | Median and quartiles | Mode only | Range only |
| 246 | Which graphical representation is most appropriate for comparing percentage contributions of categories? | Histogram | Pie chart | Ogive | Frequency polygon |



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| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|--|---------------------------|---------------------------|---------------------------------|--------------------------|
| 247 | A bar diagram comparing sales of four products in a year shows unequal widths of bars. What is the consequence? | Correct visual comparison | Misleading representation | Represents cumulative frequency | Shows relative frequency |
| 248 | Two coins are tossed simultaneously. The probability that at least one head appears is: | 1 | 1/4 | 1/2 | 3/4 |
| 249 | A bag contains 5 red, 4 blue, and 3 green balls. One ball is drawn at random. The probability that it is red or green is: | 2/3 | 5/12 | 3/12 | 5/3 |
| 250 | Events A and B are independent with $P(A)=0.5$, $P(B)=0.4$. Then $P(A \cup B)$ is: | 0.2 | 0.7 | 0.9 | 0.5 |
| 251 | From a standard deck of 52 cards, a card is drawn at random. The probability that it is a king or a heart is: | 8/52 | 17/52 | 4/13 | 8/13 |
| 252 | A die is rolled twice. The probability that the sum of numbers is 7 is: | 1/6 | 7/36 | 1/4 | 1/9 |
| 253 | A box contains 6 white and 4 black balls. Two balls are drawn without replacement. The probability that both are white is: | 1/3 | 3/5 | 2/5 | 1 1/3 |
| 254 | In a factory, 2 machines produce 60% and 40% of total output. Their defect rates are 3% and 5% respectively. If a product is defective, the probability it came from Machine 1 is: | 0.36 | 0.47 | 0.5 | 0.6 |
| 255 | A bag contains 3 red, 4 blue, and 5 green balls. Three balls are drawn at random without replacement. Probability that all are different colors: | 8/12 | 7/12 | 3/11 | 8/13 |
| 256 | A box contains 8 balls numbered 1 to 8. A ball is drawn at random. Probability that it is prime or even: | 3/8 | 5/8 | 1/2 | 7/8 |
| 257 | A die is rolled 3 times. Probability of getting exactly two sixes is: | 5/72 | 25/216 | 10/72 | 115/216 |
| 258 | Two dice are rolled. Probability that the sum is a prime number is: | 8/12 | 7/36 | 5/12 | 8/13 |
| 259 | A bag contains 5 white and 7 black balls. Two balls are drawn with replacement. Probability that both are black is: | 24/144 | 49/144 | 35/144 | 59/144 |
| 260 | A die is rolled. Probability that the number is odd and less than 5 is: | 1/2 | 2/3 | 1/6 | 1/3 |
| 261 | A card is drawn from a deck. Probability that it is neither a face card nor a red card is: | 5/13 | 7/13 | 7/26 | 6/13 |
| 262 | In a box, 4 defective and 6 good bulbs. Two bulbs drawn without replacement. Probability that at least one is defective: | 4/10 | 6/10 | 2/3 | 3/5 |
| 263 | A card drawn from a deck. Probability that it is black or a king: | 7/13 | 9/13 | 7/26 | 6/13 |



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| SL NO | QUESTIONS | OPTION 1 | OPTION 2 | OPTION 3 | OPTION 4 |
|-------|--|--|---|--|---|
| 264 | A die is rolled twice. Probability that the first number is greater than the second: | $7/36$ | $5/12$ | $1/6$ | $10/36$ |
| 265 | Probability of rolling an odd number on a die is: | $1/3$ | $5/6$ | $1/2$ | $2/3$ |
| 266 | Bag contains 2 red, 3 blue, 4 green balls. Probability that a ball drawn is not blue: | $2/3$ | $1/3$ | $3/2$ | $4/9$ |
| 267 | A die rolled. Probability that the number is greater than 5: | $2/3$ | $1/3$ | $3/2$ | $4/9$ |
| 268 | Probability of drawing an ace from a deck: | $5/52$ | $7/52$ | $4/13$ | $1/13$ |
| 269 | Box has 8 balls numbered 1–8. Probability of drawing a number divisible by 2 or 3: | $1/3$ | $5/8$ | $1/2$ | $2/3$ |
| 270 | Which of the following is a weighted index number? | Simple aggregate price index | Laspeyres price index | Paasche price index | Both b and c |
| 271 | The price of commodity X in 2019 was 50, in 2020 it became 55. Using 2019 as base year, the simple price index is: | 110 | 105 | 120 | 100 |
| 272 | In time series analysis, seasonal variation is: | Long-term trend | Short-term fluctuations due to weather, festivals, etc. | Random irregular variation | Cyclical variation |
| 273 | A Paasche price index tends to understate inflation compared to Laspeyres index when: | Prices are rising and quantities of expensive items decrease | Prices are falling and quantities of expensive items decrease | Prices are rising and quantities of expensive items increase | Prices are falling and quantities of expensive items increase |
| 274 | The mean is the most appropriate measure of central tendency when: | Data is highly skewed | Data is symmetric and without outliers | Data is qualitative | Data is categorical |
| 275 | Find the mean of the data: 5, 8, 12, 15, 20. | 12 | 10 | 11 | 13 |
| 276 | Find the median of the data: 3, 7, 9, 12, 15, 18. | 9 | 10.5 | 12 | 11 |
| 277 | For a frequency distribution, the mode is: | Always equal to mean | The value with highest frequency | Always equal to median | Arithmetic average of all values |
| 278 | Data: 2, 4, 4, 6, 8, 8, 8, 10. Mode is: | 4 | 8 | 6 | 10 |
| 279 | The relationship between mean, median, and mode in a positively skewed distribution is: | Mean < Median < Mode | Mode < Median < Mean | Median < Mode < Mean | Mean = Median = Mode |
| 280 | Find the range for data: 15, 20, 25, 30, 40. | 25 | 15 | 20 | 10 |
| 281 | Which measure of dispersion uses all data points? | Range | mode | Variance | Interquartile range |
| 282 | Compute variance of 2, 4, 6, 8. | 5 | 9 | 4 | 8 |
| 283 | Which measure of central tendency is suitable for ordinal data? | Mean | Median | Mode | Both Median and Mode |
| 284 | Find the coefficient of variation (CV) for data with mean 50 and standard deviation 5. | 5% | 10% | 15% | 20% |
| 285 | The quartile deviation measures: | Total spread of data | Spread of middle 50% of data | Maximum value difference | Average deviation from mean |
| 286 | Data: 4, 6, 8, 10, 12, 14, 16. Find Q1 and Q3. | 6 and 14 | 5 and 15 | 6 and 12 | 5 and 13 |
| 287 | If standard deviation is 0, then: | Data is highly variable | Data has all identical values | Mean = 0 | Median = 0 |



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|-------|--|---------------------------------------|---|-------------------------------|----------------------------|
| 288 | Find mean deviation from mean for data: 3, 5, 7. | 1 | 1.33 | 2 | 2.5 |
| 289 | Which measure of dispersion is least affected by extreme values? | Range | Variance | Standard deviation | Quartile deviation |
| 290 | Data: 10, 12, 14, 16, 18. Find standard deviation. | 2.83 | 5.16 | 2 | 4 |
| 291 | The sum of deviations from mean is always: | Positive | Negative | Zero | Depends on data |
| 292 | Data: 5, 10, 15, 20, 25. Find skewness (approx) using (Mean–Median)/SD. | 0 | 0.5 | 1 | -0.5 |
| 293 | Which statement is correct for normal distribution? | Mean = Median = Mode | Mean > Median > Mode | Mean < Median < Mode | Mode > Mean > Median |
| 294 | Correlation measures: | Strength of cause-effect relationship | Strength and direction of linear relationship | Difference between means | Deviation from mean |
| 295 | Given data: X:1,2,3; Y:2,4,6. Compute correlation coefficient (r). | 1 | 0.9 | 0.8 | 0.7 |
| 296 | Which correlation type is least affected by outliers? | Pearson's correlation | Spearman's rank correlation | Point-biserial correlation | Product-moment correlation |
| 297 | Data: X:2,4,6; Y:5,7,9. Regression line of Y on X: $Y = a + bX$. If $b=1$, find a. | 1 | 2 | 3 | 4 |
| 298 | Regression and correlation are related as: | $r^2 = b_{YX} * b_{XY}$ | $r = b_{YX} * b_{XY}$ | $r^2 = b_{YX} / b_{XY}$ | $r^2 = b_{YX} + b_{XY}$ |
| 299 | Data: X:1,2,3; Y:2,4,8. Find regression coefficient b of Y on X. | 1 | 3 | 2 | 4 |
| 300 | Correlation coefficient r is always: | Between $-\infty$ and $+\infty$ | Between -1 and $+1$ | Between 0 and 1 | Between -2 and $+2$ |
| 301 | If correlation coefficient $r = 0$, it implies: | No linear relationship | Negative relationship | Perfect positive relationship | None of the above |
| 302 | If $r = -0.9$, it indicates: | Strong positive correlation | Strong negative correlation | Weak correlation | No correlation |



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ANSWERS TO MCQ BANK

| SL NO | QUESTIONS | CORRECT ANSWER | ANSWER CODE |
|-------|---|------------------------------|-------------|
| 1 | Two numbers are in the ratio 7: 9, if the sum of the numbers is 288, then the smaller number is : | 126 | 1 |
| 2 | When the number 1580 is increased in the ratio 5: 9, the new number is : | 2844 | 4 |
| 3 | The ratio of the number of faces to the number of edges of a box is : | 1:2 | 3 |
| 4 | Find the fourth proportional to 6, 8, 9 is: | 12 | 2 |
| 5 | Find the compounded ratio of: 15: 8 and 18: 5 | 27:4 | 1 |
| 6 | Find the third proportional to $6\frac{1}{4}$ and 5 | 4 | 3 |
| 7 | Find the Duplicate ratio of $8a : \sqrt{4b}$ | $16a^2:b^2$ | 2 |
| 8 | A class consists of 48 male students and 23 female students. Find the ratio of female students to total strength of the class : | 23:71 | 4 |
| 9 | If 4, 6, p, 27, q are in continued proportion, find the values of p and q. | p = 9, q = 81 | 2 |
| 10 | If a Stadium having spectators divided into groups of Young Generation and Old Generation and the number of young spectators are 1525 and old spectators are 1875. Find the ratio of Total Spectators to Young Spectators. | 136:61 | 4 |
| 11 | Find two numbers whose mean proportional is 8 and the 1st number is square of the 2nd number. | 16,4 | 3 |
| 12 | AB LLP is expecting to receive a certain sum of money five years from now. If the present value of this sum is ₹38,400 at current market interest rate of 6% when the interest is compounded monthly, then how much amount they will receive after 5 years? | ₹51,794 | 4 |
| 13 | What sum will amount to ₹5480 in 6 years at 10% p.a. compound interest payable half-yearly? | ₹ 3,501 | 3 |
| 14 | Mr. Singh deposits ₹2,000 at the beginning of each year for 5 years. How much do these accumulate at the end of 5th year at an interest rate of 6%? | ₹ 11,951 | 4 |
| 15 | A buys a shop for ₹48,750 down payment and ₹60,000 after one year. If the money is worth 10% per year compounded half-yearly. Find the purchase price of the shop. | ₹ 1,03,170 | 2 |
| 16 | A loan of ₹20,000 has been issued for 5 years. Compute the amount to be repaid to the lender if simple interest is charged @ 8% per year. | ₹ 28,000 | 1 |
| 17 | Accumulated series of deposits as future sum money is classified as | Sinking Fund | 2 |
| 18 | A Laptop depreciated in value each year at 15% of its previous value and at the end of fourth year, the value was ₹36,331. Find its original value. | ₹ 69,600 | 1 |
| 19 | What would be the value of the 9th term? | 68 | 2 |
| 20 | What would be the sum of the first 11 terms of the series? | 440 | 2 |
| 21 | Which term of the series would be 82? | 12 | 1 |
| 22 | Find the next 6 terms for the series: 128, 139, 150, 161, 172, 183. | 194, 205, 216, 227, 238, 249 | 4 |
| 23 | For the given series: 66, 71, 76, 81, 86, 91, 96666, 671, 676. With 'n' terms in the series, what will be the value of 'd' ? | 5 | 4 |
| 24 | The First term is 748, Last Term is 28, and the value between two consecutive terms is 9 deducted, find the number of terms in the series. | 9 | 1 |
| 25 | Identify the type of series: $1+2+3+4+5$: | A.P | 4 |
| 26 | When a Bike had travelled for 78 km in 3 hours 45 minutes in the evening, how much distance would the Bike travelled in 2 hours? | 41.60 km | 1 |
| 27 | A cycle travels a distance of 300 m in every second. What is the distance covered in an hour by the cycle? | 1080 km | 2 |
| 28 | y is the yardstick to measure the performance of two vehicles, where $y = \text{Speed} \times \text{Time} \times \text{Distance}$. If Time taken by one of the vehicle (1st Vehicle) is increased by 10%, what would be the impact on the yardstick? | No change | 1 |
| 29 | If Toto covered 240 km at a speed of 40kmph while Scooty covered 180 km at a speed of 60 kmph, which one of them took less time to cover the distance and what was the time taken? | Scooty, 3 hrs | 1 |



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|-------|--|---|-------------|
| 30 | If A takes 3 hours to cover a distance of 60 km, B takes 2 hours to cover a distance of 50 km, how much time would A take more than B to cover 300 km? | 3 hours | 4 |
| 31 | What will be the value of $(9^3)^2$? | 59049×9 | 2 |
| 32 | What will be the value of $3^6 \times 3^4 \times 3^{-2} \times 3^{-3} \times 3^6$? | 3^{11} | 4 |
| 33 | Evaluate $\frac{2^{1/3} \times 8^{2/3} \times 6^{-5/4} \times 3^{-3/4} \times 9}{\sqrt[3]{16}}$ | $\frac{1}{\sqrt{2}}$ | 1 |
| 34 | Find the value of the logarithm of 2nd number (b) for 3 consecutive numbers (a, b, c). | $\frac{1}{2} \times \log(1+ac)$ | 3 |
| 35 | If $\log(7y-5) = 2$, find the value of y. | 15 | 1 |
| 36 | Compute $\frac{12!}{(8 \times 4!)}$ | 495 | 2 |
| 37 | Find the number of permutations for 15 scooters if 3 scooters are to be considered at a time. | 2730 | 1 |
| 38 | Find the value of a, if $(a-2)! \times 24 = (a+1)!$ | 3 | 4 |
| 39 | Find the square of the difference of the roots of $115 + 5(x^2 - 12x) = 0$ | 52 | 4 |
| 40 | When α and β are the roots of $5x^2 - 7x + 9 = 0$ then find the values of $\alpha + \beta + 4$ | $\frac{27}{5}$ | 1 |
| 41 | In Venn diagram, Universal Set is represented by _____. | Rectangle | 3 |
| 42 | According to De Morgan's Law: $(B \cap C)' =$ _____. | $B' \cup C'$ | 1 |
| 43 | What would be the factorial notation for: $11 \times 10 \times 9 \times 8 \times 7$ | $\frac{11!}{6!}$ | 1 |
| 44 | How many ways can 8 people get vaccinated from 8 vaccinators, assuming no vaccinator is idle? | 40320 ways. | 1 |
| 45 | In how many different ways can 4 different cars, one of each of the 4 manufacturers, be parked in a parking lane? | 24 ways | 3 |
| 46 | For what values of a and b, the product of roots would be equal to c? | $a = 1$ | 3 |
| 47 | When are nature of roots real rather than imaginary? | If Discriminant is more than or equal to zero | 4 |
| 48 | For any sum of roots of quadratic equation, 'b' represents - | Coefficient of x | 1 |
| 49 | For any sum of roots of quadratic equation, 'a' represents - | Coefficient of x^2 | 2 |
| 50 | If $b^2 - 4ac > 0$, is a perfect square, the nature of roots would be | Real and Unequal | 4 |
| 51 | $\lim_{x \rightarrow 3} (x^3 + 1)$ | 55 | 3 |
| 52 | $\lim_{x \rightarrow 0} (4x^2 + 7x + 5)$ | 5 | 3 |
| 53 | $\lim_{x \rightarrow 0} \left(\frac{x^2 - 16}{x - 4} \right)$ | 8 | 3 |
| 54 | If $y = xe^x$ then $\frac{dy}{dx} = ?$ | $e^x (x + 1)$ | 2 |
| 55 | $f(x) = x^5/5 + x^4/4 + x^3/2 - 7x^2 + 18$. $f'(x) = ?$ | $x^4 + x^3 + 3x^2 - 14x$ | 4 |
| 56 | When $y = 4x$ then derivative of y is — | $4^2 \log 2$ | 3 |



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| SL NO | QUESTIONS | CORRECT ANSWER | ANSWER CODE |
|-------|--|-----------------------------------|-------------|
| 57 | Find the differential coefficient of $y = e^x/e^x+1$ | $\frac{e^x}{(e^x + 1)^2}$ | 1 |
| 58 | $y = (4x - 3)^3 + (5x - 2)^2$. Calculate y_1 | $192x^2 + 26x + 58$ | 4 |
| 59 | $\frac{x^2}{16} + \frac{y^2}{4} = 1$ is an implicit function. The derivative of this function is : | $-\frac{x}{4y}$ | 2 |
| 60 | The result of differentiation of $y = \log [3x^2 + 13x + 10]$ is -- | $\frac{6x + 13}{3x^2 + 13x + 10}$ | 3 |
| 61 | A soft-drink manufacturer has a revenue function $R = 7Q^2 - 19Q + 30$ and the cost function is given by $9Q$. Find the number of cans produced by the firm, under perfect competition. | 2 | 1 |
| 62 | A tin manufacturer has a revenue function given by: $R = 11Q^2 - 110Q + 70$ and the cost function is given by: $C = 22Q$. Find the number of tins to be produced by the manufacturer. | 6 | 2 |
| 63 | A demand function is given by: $P = a - bQ$ and the cost function is given by $C = Q^2$. Find the value of Q for which profit will be maximum under perfect competition. | $\frac{a}{2(b+1)}$ | 3 |
| 64 | The demand function is given by: $P = 1400 - 25Q$ and the cost function is given by $C = 10Q^2$. Find the value of Q at the equilibrium point. | 20 | 2 |
| 65 | A revenue function is given by $R = 3Q^2 - 8Q + 15$ and the cost function is given by: $C = 28Q$. Find the value of Q for achieving highest profit. | 6 | 3 |
| 66 | A demand function is given by: $P = 1500 - 3Q$ and the cost function is given by: $C = 12Q^2$. Find the value of Q at the equilibrium point. | 50 | 1 |
| 67 | A firm has a fixed production cost of ₹ 90 and a marginal variable production cost of ₹ 9. The price of the product is ₹ 18. Find the cost function, revenue function, and the value of Q at the Break Even point. | $9Q + 90; 18Q; 10$ | 2 |
| 68 | A sugar industry has a fixed cost of ₹ 290 and a marginal cost of 50 paise. He sells sugar at the price of ₹ 15/kg. Find the quantity of sugar sold for breaking even. | 20 | 3 |
| 69 | A cotton mill has a fixed cost of ₹ 1540 and a marginal cost of ₹ 33. He sells a shirt at a price of ₹ 110. Find the minimum number of shirts sold so the mill incurs no loss. | 20 | 2 |
| 70 | Given: $C(x) = 900 + 30x + 0.6x^2$, $P = 90$. Find the value of x at equilibrium point. | 50 | 2 |
| 71 | Given: $C(x) = 2x^2 - 3x - 12$, $P = 33$. Find the value of x at equilibrium point. | 9 | 1 |
| 72 | Given: $R(x) = 3x^2 + 24x + 2$, $MC(x) = 42$ and the fixed cost is 90. Find the value of x at equilibrium point. | 3 | 2 |
| 73 | Given: $R(x) = 6x^2 - 11x - 35$, $C(x) = 5x^2 - 3x + 16$. Find the value of x for which profit is maximum. | 4 | 2 |
| 74 | Given: $R(x) = 20x^2 - 15x - 10$, $C(x) = x^2 + 99x + 27$. Find the value of x for which profit is maximum | 3 | 1 |
| 75 | Given: $R(x) = 3x^2 + 4x + 2$, $MC(x) = 16$ and the fixed cost is 24. Find the profit maximising value of x under perfect competition. | 2 | 4 |
| 76 | A manufacturer has a monthly fixed cost of ₹ 1, 00,000 and a production cost of ₹ 50 per unit produced. The product is sold at ₹ 75. Find the cost function and the number of products be sold by the manufacturer to have break even. | $50x + 1,00,000; 4000$ | 2 |
| 77 | A cement industry has a yearly fixed cost of ₹ 96,000 and a monthly production cost of ₹ 13 per unit produced. The product is sold at ₹ 39 per unit. Find the cost function | $13x + 8000$ | 1 |
| 78 | Find the monthly profit function if a firm's yearly fixed cost is ₹ 60,000 and yearly production cost is ₹ 120 per piece. Each unit is sold at ₹ 15. | $\pi = 5x - 5000$ | 1 |
| 79 | Given: $C(x) = 9x + 350$ and $P = 14$. Find the condition of getting break-even point | $5x - 350 = 0$ | 1 |
| 80 | Given: $C(x) = 9x + 350$ and $P = 14$. Find the break-even quantity | 70 | 2 |
| 81 | $f(x) = 6x^2 + 11x - 35$ | Minimum | 2 |
| 82 | $f(x) = -4x^2 - 7x - 35$ | Maximum | 1 |
| 83 | $f(x) = 20x^2 - 15x - 10$ | Minimum | 2 |
| 84 | $f(x) = 3x^2 - 4x + 2$ | Minimum | 2 |
| 85 | $f(x) = -x + 6x + 18$ | Maximum | 1 |



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| SL NO | QUESTIONS | CORRECT ANSWER | ANSWER CODE |
|-------|--|---|-------------|
| 86 | $f(x) = 9x^2 - 6x + 1$ | Minimum | 2 |
| 87 | $f(x) = -x^2 + 4x - 2$ | Maximum | 1 |
| 88 | $f(x) = 3x^2 + 2$ | Minimum | 2 |
| 89 | $f(x) = x^2 - 3x$ | Minimum | 2 |
| 90 | $f(x) = ax^3 + bx^2 + cx + d$; $a < 0$; $b < 0$; $c > 0$ and $a < b$ | Maximum | 1 |
| 91 | $f(x) = x^3 - 9x^2 + 81x + 70$ | No curvature | 3 |
| 92 | $f(x) = (2/3)x^3 + (9/2)x^2 - 11x - 21$ | Maximum, $x = -1/2$; Minimum, $x = 1$ | 2 |
| 93 | $f(x) = (4/3)x^2 - 5x^2 + 4x - 9$ | Maximum, $x = 1/2$; Minimum, $x = 2$ | 2 |
| 94 | $f(x) = x^3 - 2x^2 - 4x$ | Maximum, $x = -2/3$; Minimum, $x = 2$ | 1 |
| 95 | $f(x) = x^3/3 - 4.5x^2 - 8x + 2$ | Maximum, $x = 1$; Minimum, $x = 8$ | 1 |
| 96 | $f(x) = x^3/3 - 3/2x^2 + 2x - 3$ | Maximum, $x = 1$; Minimum, $x = 2$ | 2 |
| 97 | $f(x) = 2/3x^2 - 3/2x^2 - 5x$ | Maximum, $x = -1$; Minimum, $x = 5/2$ | 1 |
| 98 | $f(x) = -x^3/3 + 4x^2 - 15x$ | Maximum, $x = 5$; Minimum, $x = 3$ | 2 |
| 99 | $f(x) = x^3/3 - x^2/2 - 2x$ | Maximum, $x = -1$; Minimum, $x = 2$ | 1 |
| 100 | $f(x) = x^2/3 + 2x^2 + 3x + 7$ | Maximum, $x = -3$; Minimum, $x = -1$ | 1 |
| 101 | The word 'Statistics' has been derived from the Latin word 'Status' which means : | A political state | 4 |
| 102 | Which one of the following has synonymous words? | Stastik, Statista, Stats | 2 |
| 103 | Statistics is a tool in the hands of mankind : | To translate complex facts into simple and understandable statements of facts | 1 |
| 104 | The word statistics in plural form means : | The numerical data collected in a systematic manner with some definite aim or object in view such as the number of persons unemployed in a country. | 2 |
| 105 | The word statistics in singular form means : | The science of statistics that deals with the principles, devices or statistical methods of collecting, analyzing and interpreting numerical data | 4 |
| 106 | Which one of the following is not a characteristic of Plural form of Statistics? | Statistics are always graphically expressed | 3 |
| 107 | Statistics in singular sense has : | 4 stages | 4 |
| 108 | Measurement of skewness is : | Analysis of data | 1 |
| 109 | Find the odd man out from the following : | Sampling | 3 |
| 110 | Raw data is : | Information which can't be put to use directly | 2 |
| 111 | There are four person named A, B, C, & D. A is a sales person whereas B, C, D are students. A collected sales figures for his region and B, C, D used these data in order to study sales pattern. Which one of the following is correct? | B uses secondary data | 1 |
| 112 | Which one of the following is a method of collecting primary data? | Information collected by Government through Census | 3 |
| 113 | Classification of data is : | The process of arranging things in groups or classes according to their common characteristics and | 2 |



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|-------|---|---|-------------|
| | | affinities | |
| 114 | In Statistics classification : | Separates data into different but related parts | 3 |
| 115 | Which one of the following is a characteristic of a good classification? | Classification should be stable | 3 |
| 116 | When the basis of classification is according to differences in time it is called | Temporal Classification | 1 |
| 117 | Dichotomous Classification is : | When data is classified into two groups according to presence or absence of one attribute | 4 |
| 118 | Tabulation Condenses classified data so that: | Data may be more easily understood | 1 |
| 119 | Tabulation is preferred to textual presentation because : | Tabulation is a must for diagrammatic representation | 2 |
| 120 | With respect to accuracy : | Tabular presentation is preferable to Diagrammatic presentation | 3 |
| 121 | Which one of the following is a Positional Average? | Mode; | 3 |
| 122 | Because of heavy rain on Sunday average rainfall of a city for the week increased to 0.6 inch from the average rainfall 0.3 inch measured from Monday to Saturday. The rainfall on Sunday was- | 2.4 inch; | 1 |
| 123 | The mean of the frequency distribution ((x f ₁ , 1), (x ₂ , f ₂), (x ₃ , f ₃).....(x _n , f _n)) is : | $\frac{\sum Fx}{n}$ | 3 |
| 124 | $\sum_{x=1}^{20} x = 54120$; While computing this, it was observed that two entries were wrongly entered as 850 and 320 instead of 580 and 230. Correct value of x is: | 2688; | 1 |
| 125 | $\Sigma(X - \bar{X})$ is always equal to : | 0; | 3 |
| 126 | The sum of the squares of deviations of a set of observations is the minimum when deviations are taken from the : | Arithmetic Mean; | 3 |
| 127 | If each of the values of a variable x with mean of x, is multiplied by K then the new mean of the variable is : | $k\bar{x}$ | 2 |
| 128 | Assumed mean is 35, $\sum fd = -425$ & $\sum f = 63$, x is: | 28.25 | 3 |
| 129 | If $\bar{A} = 500$, $i = 1000$ & $\sum fd' = 232$ & $\sum f = 120$ x is : | 2433.33 | 1 |
| 130 | The mean daily salary paid to all employees in a certain company was ₹600. The mean daily salaries paid to the male and female employees were ₹620 and ₹520 respectively. Male to female employees ratio in the company is : | 4:1; | 4 |
| 131 | The pass result of 50 students who took up a class test is given below: Marks : 4 5 6 7 8 9 No of Students : 8 10 9 6 4 3 | 2.1 | 4 |
| 132 | For a certain frequency table which has only been partly reproduced below for which the mean is 1.46 No of accidents: 0 1 2 3 4 5 Frequency : 46 f ₁ f ₂ 25 10 5 If $\sum f = 200$ Unknown frequents are : | $f_1 = 76, f_2 = 38$ | 3 |
| 133 | The sum of the deviations of a certain number of observations measured from 4 is 72 and the sum of the deviations of the observations from 7 is -3. Mean of the observations is | 6.88 | 1 |
| 134 | The mean of a certain number of items is 42. If one more item 64 is added to the data, the mean becomes 44. The no of items in the original data is | 10 | 2 |
| 135 | The weighted average from the following observation is ₹46.23. Price per tonne (₹) : 45.60 50.70? Tonnes Purchased : 135 40 25 Simple average of observation is | ₹ 46.26 | 2 |
| 136 | In a certain factory a unit of work is completed by A in 4 minutes, by B in 5 minutes, by C in 6 minutes, by D in 10 minutes, and by E in 12 minutes. Average number of units of work completed per minute is | 4/25 | 3 |



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|-------|--|---|-------------|
| 137 | A person walks 8 km at 4km an hour, 6km at 3km an hour and 4km at 2km an hour. Average speed per hour is | 3 | 3 |
| 138 | It is the most suitable average when it is desired to give greater weight to smaller observations and less weight to larger ones. It is | HM | 2 |
| 139 | Which one of the following is not a feature of Arithmetic Mean (AM)? | AM is widely used in the study of qualitative phenomenon; | 2 |
| 140 | Which one of the following is a feature of Harmonic Mean (HM)? | GM is useful when a given phenomenon has a limit for lower value; | 3 |
| 141 | If b_{XY} and b_{YX} are regression coefficients of series X on series Y and regression coefficients of series Y on series X respectively then which one of the following is correct? | $b_{XY} \times b_{YX} = r^2$, where r is the correlation coefficient | 2 |
| 142 | If b_{XY} and b_{YX} are regression coefficients of series X on series Y and regression coefficients of series Y on series X respectively then which one of the following is correct? | b_{XY} and b_{YX} will be either both positive or both negative | 1 |
| 143 | Which one of the following is correct? | Regression equation predicts most likely values of one variable for specified values of other variable | 2 |
| 144 | If $r = 0.52$, $\sigma_X = 4.6$ & $\sigma_Y = 36.8$ then b_{XY} is equal to: | 0.065 | 4 |
| 145 | If b_{XY} & b_{YX} are regression coefficients between X on Y and Y on X respectively and r is the correlation coefficient between X and Y then : | $\frac{b_{xy} + b_{yx}}{2} \geq r$ | 3 |
| 146 | If b_{XY} & b_{YX} are regression coefficients between X on Y and Y on X respectively then | $\sqrt{\frac{b_{xy}}{b_{yx}} \times \frac{b_{yx}}{b_{xy}}} \geq 1$ | 1 |
| 147 | In a regression equation: | Regression coefficient represents the increment in the value of the dependent variable for a unit change in the value of the independent variable | 2 |
| 148 | If $r^2 = 0.3$ & $b_{XY} = -1.5$ then b_{YX} is equal to : | -0.2 | 2 |
| 149 | In a bivariate regression analysis $\Sigma XY = 1355.25$, $(\Sigma X)(\Sigma Y) = 6396$, $\Sigma X^2 = 591.50$ & $\Sigma Y^2 = 52$. If there are 5 items then b_{YX} | 1.5 | 4 |
| 150 | $X = 1.36Y - 5.2$ & $Y = 0.61X + 1.51$ are two regression equations. Correlation coefficient between X & Y is : | 0.911 | 3 |
| 151 | In a bivariate regression analysis comprising of series X & Y, if $\Sigma(X - \bar{X})^2 = \Sigma(Y - \bar{Y})^2$ then : | $b_{XY} = b_{YX}$ | 1 |
| 152 | In a bivariate regression analysis, the difference between actual value of dependent variable and the predicted value of the dependent variable is called | Residual | 3 |
| 153 | Consider the following results: $N = 12$, $\Sigma dx = 0$, $\Sigma dy = 4$, $\Sigma dx^2 = 1344$, $\Sigma dy^2 = 215$, $\Sigma dx dy = -4360$ Appropriate regression coefficient is - | -.3.244 | 4 |
| 154 | In a bivariate regression analysis for dependent variable if d = Actual value - Predicted value then at different values of independent variable | Best fit curve occurs when $d1^2 + d2^2 + \dots + dn^2$ is minimum | 1 |
| 155 | Consider the following results: $N = 6$, $\Sigma y = 42$, $\Sigma y^2 = 318$, $b_{yx} = -11/34$, $\Sigma x^2 - 1/n(\Sigma x)^2 = 34$, Then b_{xy} is | -.11/24 | 4 |
| 156 | In a bivariate analysis if two regression equations are $mx - y + 10 = 0$ & $-2x + 5y = 14$. If coefficient of correlation between x & y is $\frac{1}{\sqrt{10}}$. then value of m is: | 4 | 3 |
| 157 | In a bivariate analysis if two regression equations are $8x - 10y + 66 = 0$ & $40x - 18y - 214 = 0$. Then \bar{x} , \bar{y} , the mean of the series \bar{x} & \bar{y} are respectively : | 13,17 | 1 |



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|-------|--|---|-------------|
| 158 | Probability theory is often referred to as : | Science of uncertainty | 2 |
| 159 | In general probability is : | A numerical value between 0 and 1, inclusive, describing the relative possibility an event will occur | 4 |
| 160 | The probability of two events A and B are 0.05 and 0.95 respectively. We can infer that | Event B is more probable to happen | 3 |
| 161 | "Sun will disappear from blue sky today forever". With our available information & belief which one of the following value is most appropriate as probability to this event? | 0 | 4 |
| 162 | For an event Odds in favour are "five to two" This means that : | In a total of seven trials the event will occur five times : | 1 |
| 163 | Classical probability is based on the assumption that : | The outcomes of an experiment are equally likely | 4 |
| 164 | If an experiment has a set of events that includes every possible outcomes, then the set is called: | Collectively Exhaustive set | 3 |
| 165 | Classical probability is : | Probability of an event= Number of favourable outcome/Total number of possible outcome | 1 |
| 166 | Addition rule for mutually exclusive events A & B is : | $P(A \text{ or } B) = P(A) + P(B)$ | 1 |
| 167 | If two unbiased coins are tossed once, the probability of getting both the heads is | 0.25 | 1 |
| 168 | The probability that a leap year selected at random contain 53 Sundays is : | 0.286 | 3 |
| 169 | A lot contains 10 items of which 3 are defective. Three items are chosen from the lot at random one after another without replacement. The probability that all the three are defective is | 0.008 | 1 |
| 170 | If $P(A) = 0.3, P(B) = 0.2$ and $P(C) = 0.1$, then assuming A,B and C are independent events, the probability of occurrence of at least one of the three events is : | 0.496 | 4 |
| 171 | In IPL Kolkata Knight Riders plays 70% of their games at night (8 O'clock slot) and 30% during the day (4 O'clock slot). The team wins 50% of their night games and 90% of their day games. According to today's newspaper they own yesterday. The probability that the game was played at night is : | 0.5645 | 2 |
| 172 | When two events happen simultaneously which of the following is true? | The outcome of the first event may or may not have an effect on the outcome of the second event | 2 |
| 173 | A survey by Air travelers' association revealed that 60% of its member made airline reservations last year. Two members are selected at random. The probability that both the members made airline reservations last year is : | 0.36 | 3 |
| 174 | If an unbiased coin is tossed once, then the two events head and tail are: | All these | 4 |
| 175 | Sum of probability of an event A and its complement is __ | 1 | 1 |
| 176 | If p: q are the odds in favour of an event, then the probability of that event is : | $p/(p + q)$ | 2 |
| 177 | A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. The probability that the number of the drawn ball will be multiple of 3 or 7 is : | 13/30 | 2 |
| 178 | Three coins are tossed together. The probability of getting exactly two heads is : | 3/8 | 2 |
| 179 | Two dice are thrown together. The probability of the event that the sum of numbers shown is greater than 5 is: | 13/18 | 1 |
| 180 | Probability of throwing an even number with an ordinary six faced die is : | 1/2 | 1 |
| 181 | 4 coins are tossed. The probability that there are 2 heads is : | 3/8 | 2 |
| 182 | A bag contains 10 red and 10 green balls. A ball is drawn from it. The probability that it will be green is : | 1/2 | 3 |
| 183 | By using arithmetic mean method the index number from the following data is Commodity Base Current price price Weight Rice 30 52 8 Wheat 25 30 6 Fish 130 150 3 Potato 35 49 5 Oil 70 105 7 | 144.92 | 1 |



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|-------|---|----------------|-------------|
| | E 25 30 5 Weighted A.M of price relative index number is | | |
| 194 | From the following find the Fisher's Quantity index Item Base Year Current Year Unit Price Qty. Unit Price Qty. A 8 6 12 5 B 10 5 11 6 C 17 8 8 5 | 78.12 | 3 |
| 195 | From the following find the Simple average (AM) of Relative Quantity index Item Base Year Qty. Current Year Qty. A 8 12 B 10 11 C 15 10 | 108.89 | 2 |
| 196 | From the following find the Simple average (GM) of Relative Quantity index Item Base Year Qty. Current Year Qty. A 8 12 B 10 11 C 15 10 | 103.23 | 4 |
| 197 | From the following data the five year moving average against year 5 Year 1 2 3 4 5 6 7 8 9 Sales (₹) 36 43 43 34 44 54 34 24 14 | 41.8 | 4 |
| 198 | From the following data the four year centered moving average against year 6 Year 1 2 3 4 5 6 7 8 9 Sales (₹) 36 43 43 34 44 54 34 24 14 | 40.25 | 1 |
| 199 | From the following series find out a three year moving average against year 4 is Year 1 2 3 4 5 6 7 Values 12 14 15 17 18 20 23 | 16.67 | 3 |
| 200 | From the following series find out a three year weighted moving average against year 4 with weights 1,4,1 is : Year 1 2 3 4 5 6 7 Values 12 14 15 17 18 20 23 | 16.83 | 2 |
| 201 | Consider the following table: Commodity Weights Base Current price price p.u. p.u. (₹) (₹) A 40 16 30 B 25 40 70 C 5 0.5 1.5 D 20 5.12 7.25 E 10 2 2.5 Weighted A.M price relative index is | 174.7 | 2 |
| 202 | From the following four year centered moving average against year 4 is Year 1 2 3 4 5 6 7 Import (₹ m) 229 231 206 191 195 184 193 | 199.875 | 2 |
| 203 | If $a : b = 3 : 4$ and $b : c = 8 : 9$, then what is $a : b : c$? | 6:8:9 | 1 |
| 204 | If $x : y = 5 : 7$ and $y : z = 14 : 15$, find $x : z$. | 10:15 | 2 |
| 205 | A sum of ₹480 is divided among A, B, and C such that A's share : B's share = 3 : 5 and B's share : C's share = 10 : 12. Find C's share. | ₹ 205 | 2 |
| 206 | If the mean proportional between 9 and x is 15, find x. | 25 | 1 |
| 207 | A sum of ₹10,000 is invested at 8% per annum compound interest, compounded annually. What will be the amount after 3 years? | ₹ 12,597 | 1 |
| 208 | If ₹5,000 is invested for 4 years at 10% per annum simple interest, what is the total interest earned? | ₹ 2,000 | 4 |
| 209 | A person wants to have ₹20,000 in 3 years. If the bank offers 8% per annum compound interest, what amount should he invest now? | ₹ 15,875 | 3 |



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|-------|--|--|-------------|
| 210 | If ₹12,000 is invested for 2 years at compound interest and the total amount is ₹13,824, what is the rate of interest per annum? | 7.35% | 1 |
| 211 | The 12th term of an AP is 45, and the 20th term is 77. What is the common difference? | 4 | 4 |
| 212 | The 5th term of a GP is 64 and the 8th term is 512. Find the common ratio. | 2 | 1 |
| 213 | If the sum of the first n terms of an AP is $S_n = 3n^2 + 2n$, what is the 10th term? | 59 | 3 |
| 214 | A person covers a certain distance at a speed of 40 km/h and returns at a speed of 60 km/h. What is his average speed for the entire journey? | 48 km/h | 1 |
| 215 | Two trains start from two stations 250 km apart and move towards each other at speeds of 60 km/h and 40 km/h respectively. They cross after how much time? | 2.5 hours | 2 |
| 216 | A boat goes 30 km upstream in 2 hours and returns downstream in 1.5 hours. Find the speed of the stream. | 2.5 km/h | 3 |
| 217 | A train running at 54 km/h crosses a pole in 30 seconds. What is the length of the train in meters? | 450 | 2 |
| 218 | In a group of 60 students, 25 like cricket, 30 like football, and 10 like both. How many students like neither cricket nor football? | 15 | 3 |
| 219 | In a class of 50 students, 28 play basketball, 22 play volleyball, and 10 play both. How many play exactly one sport? | 30 | 1 |
| 220 | In a class, 60 students took exams in math or science. 40 passed math, 35 passed science, and 10 passed both. How many passed only science? | 25 | 3 |
| 221 | If $3^{x+1} = 81$, find the value of x. | 3 | 1 |
| 222 | If $\log_2 8 + \log_2 4 = ?$ | 5 | 1 |
| 223 | If $\log_a 36 = 2 + \log_a 6 = 1$ | 6 | 4 |
| 224 | If $\log_5 X + \log_5 (X-4) = 1$, find X. | 5 | 1 |
| 225 | If $3^{2x} \times 9^{x-1} = 729$, find X. | 2 | 4 |
| 226 | The number of ways to arrange the letters of the word "BALLOON" is: | 1260 | 3 |
| 227 | How many ways can 5 books be arranged on a shelf if 2 specific books must not be together? | 72 | 1 |
| 228 | From a group of 8 men and 6 women, a committee of 4 is to be formed such that at least 2 women are included. How many such committees are possible? | 595 | 4 |
| 229 | How many 4-digit numbers can be formed using digits 1,2,3,4,5 without repetition? | 120 | 1 |
| 230 | How many different committees of 3 men and 2 women can be formed from 6 men and 5 women? | 200 | 3 |
| 231 | From 10 persons, in how many ways can a president, secretary, and treasurer be chosen? | 720 | 1 |
| 232 | How many ways can 6 students be seated in a row if 2 particular students must sit together? | 240 | 1 |
| 233 | From a set of 7 different books, in how many ways can 3 be selected and arranged on a shelf? | 210 | 2 |
| 234 | If the quadratic equation $2x^2 + kx + 8 = 0$ has equal roots, then the value of k is: | ± 8 | 2 |
| 235 | If α and β are roots of $3x^2 - 5x + 2 = 0$, then the value of $\alpha^3 + \beta^3$ is: | 35/27 | 4 |
| 236 | The quadratic equation $x^2 - 6x + k = 0$ will have real and distinct roots if: | $k < 9$ | 3 |
| 237 | If one root of $2x^2 + 3x + k = 0$ is double the other, then k equals: | 1 | 2 |
| 238 | If the total cost function of producing x units is $C = 5x^2 + 20x + 100$, then the marginal cost at x = 10 units is: | 120 | 1 |
| 239 | If the demand function is $p = 100 - 2x$, find the marginal revenue when $x = 20$. | 20 | 2 |
| 240 | For the profit function $P(x) = -2x^2 + 40x - 100$, the maximum profit occurs at x =: | 10 | 3 |
| 241 | If total cost $C(x) = 100 + 10x + 0.5x^2$, find the rate of change of average cost when $x = 10$. | -0.5 | 1 |
| 242 | A firm's marginal cost $MC = 3x^2 - 6x + 4$. If fixed cost = 20, find the total cost function. | $x^3 - 3x^2 + 4x + 20$ | 1 |
| 243 | A histogram has unequal class intervals. Which of the following represents the height of the bars correctly? | Height = Frequency \div Class width | 3 |
| 244 | The ogive of a distribution is rising steeply in the middle range and flat at both ends. This indicates: | Most data concentrated in the middle classes | 1 |
| 245 | The cumulative frequency curve can be used to determine: | Median and quartiles | 2 |
| 246 | Which graphical representation is most appropriate for comparing percentage contributions of categories? | Pie chart | 2 |
| 247 | A bar diagram comparing sales of four products in a year shows unequal widths of bars. What is the consequence? | Misleading representation | 2 |
| 248 | Two coins are tossed simultaneously. The probability that at least one head appears is: | 3/4 | 4 |
| 249 | A bag contains 5 red, 4 blue, and 3 green balls. One ball is drawn at random. The probability that it is red or green is: | 2/3 | 1 |
| 250 | Events A and B are independent with $P(A)=0.5$, $P(B)=0.4$. Then $P(A \cup B)$ is: | 0.7 | 2 |
| 251 | From a standard deck of 52 cards, a card is drawn at random. The probability that it is a king or a heart is: | 4/13 | 3 |



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| 252 | A die is rolled twice. The probability that the sum of numbers is 7 is: | 1/6 | 1 |
| 253 | A box contains 6 white and 4 black balls. Two balls are drawn without replacement. The probability that both are white is: | 1/3 | 1 |
| 254 | In a factory, 2 machines produce 60% and 40% of total output. Their defect rates are 3% and 5% respectively. If a product is defective, the probability it came from Machine 1 is: | 0.47 | 2 |
| 255 | A bag contains 3 red, 4 blue, and 5 green balls. Three balls are drawn at random without replacement. Probability that all are different colors: | 3/11 | 3 |
| 256 | A box contains 8 balls numbered 1 to 8. A ball is drawn at random. Probability that it is prime or even: | 7/8 | 4 |
| 257 | A die is rolled 3 times. Probability of getting exactly two sixes is: | 5/72 | 1 |
| 258 | Two dice are rolled. Probability that the sum is a prime number is: | 5/12 | 3 |
| 259 | A bag contains 5 white and 7 black balls. Two balls are drawn with replacement. Probability that both are black is: | 49/144 | 2 |
| 260 | A die is rolled. Probability that the number is odd and less than 5 is: | 1/3 | 4 |
| 261 | A card is drawn from a deck. Probability that it is neither a face card nor a red card is: | 5/13 | 1 |
| 262 | In a box, 4 defective and 6 good bulbs. Two bulbs drawn without replacement. Probability that at least one is defective: | 2/3 | 3 |
| 263 | A card drawn from a deck. Probability that it is black or a king: | 7/13 | 1 |
| 264 | A die is rolled twice. Probability that the first number is greater than the second: | 5/12 | 2 |
| 265 | Probability of rolling an odd number on a die is: | 1/2 | 3 |
| 266 | Bag contains 2 red, 3 blue, 4 green balls. Probability that a ball drawn is not blue: | 2/3 | 1 |
| 267 | A die rolled. Probability that the number is greater than 5: | 1/3 | 2 |
| 268 | Probability of drawing an ace from a deck: | 1/13 | 4 |
| 269 | Box has 8 balls numbered 1–8. Probability of drawing a number divisible by 2 or 3: | 5/8 | 2 |
| 270 | Which of the following is a weighted index number? | Both b and c | 4 |
| 271 | The price of commodity X in 2019 was 50, in 2020 it became 55. Using 2019 as base year, the simple price index is: | 110 | 1 |
| 272 | In time series analysis, seasonal variation is: | Short-term fluctuations due to weather, festivals, etc. | 2 |
| 273 | A Paasche price index tends to understate inflation compared to Laspeyres index when: | Prices are rising and quantities of expensive items decrease | 1 |
| 274 | The mean is the most appropriate measure of central tendency when: | Data is symmetric and without outliers | 2 |
| 275 | Find the mean of the data: 5, 8, 12, 15, 20. | 12 | 1 |
| 276 | Find the median of the data: 3, 7, 9, 12, 15, 18. | 10.5 | 2 |
| 277 | For a frequency distribution, the mode is: | The value with highest frequency | 2 |
| 278 | Data: 2, 4, 4, 6, 8, 8, 8, 10. Mode is: | 8 | 2 |
| 279 | The relationship between mean, median, and mode in a positively skewed distribution is: | Mode < Median < Mean | 2 |
| 280 | Find the range for data: 15, 20, 25, 30, 40. | 25 | 1 |
| 281 | Which measure of dispersion uses all data points? | Variance | 3 |
| 282 | Compute variance of 2, 4, 6, 8. | 5 | 1 |
| 283 | Which measure of central tendency is suitable for ordinal data? | Both Median and Mode | 4 |
| 284 | Find the coefficient of variation (CV) for data with mean 50 and standard deviation 5. | 10% | 2 |
| 285 | The quartile deviation measures: | Spread of middle 50% of data | 2 |
| 286 | Data: 4, 6, 8, 10, 12, 14, 16. Find Q1 and Q3. | 6 and 14 | 1 |
| 287 | If standard deviation is 0, then: | Data has all identical values | 2 |
| 288 | Find mean deviation from mean for data: 3, 5, 7. | 1.33 | 2 |
| 289 | Which measure of dispersion is least affected by extreme values? | Quartile deviation | 4 |
| 290 | Data: 10, 12, 14, 16, 18. Find standard deviation. | 2.83 | 1 |
| 291 | The sum of deviations from mean is always: | Zero | 3 |
| 292 | Data: 5, 10, 15, 20, 25. Find skewness (approx) using (Mean–Median)/SD. | 0 | 1 |
| 293 | Which statement is correct for normal distribution? | Mean = Median = Mode | 1 |
| 294 | Correlation measures: | Strength and direction of linear relationship | 2 |
| 295 | Given data: X:1,2,3; Y:2,4,6. Compute correlation coefficient (r). | 1 | 1 |



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|-------|--|-----------------------------|-------------|
| 296 | Which correlation type is least affected by outliers? | Spearman's rank correlation | 2 |
| 297 | Data: X:2,4,6; Y:5,7,9. Regression line of Y on X: $Y = a + bX$. If $b=1$, find a. | 3 | 3 |
| 298 | Regression and correlation are related as: | $r^2 = b_{YX} * b_{XY}$ | 1 |
| 299 | Data: X:1,2,3; Y:2,4,8. Find regression coefficient b of Y on X. | 3 | 2 |
| 300 | Correlation coefficient r is always: | Between -1 and +1 | 2 |
| 301 | If correlation coefficient $r = 0$, it implies: | No linear relationship | 1 |
| 302 | If $r = -0.9$, it indicates: | Strong negative correlation | 2 |