

# M.K.G CA EDUCATION

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## TEST-3

**QUESTION BOOKLET CODE: MKG**

**QUESTION PAPER BOOKLET NO. 3032023**

**ROLL NO. ....**

## CA FOUNDATION

**(26-03-2023 3:00 P.M. TO 5:00 P.M.)**

**Business Mathematics and Logical Reasoning & Statistics**

## **FULL SYLLABUS**

**Time allowed: 2 hours**

**Maximum Marks : 100**

### **Instructions:**

1. Answer to be given in OMR sheet
  2. Negative marking applies
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1. Arrange the dimensional of Bar diagram, cube diagram, Pie diagram in sequence.  
(a) 1, 3, 2  
(b) 2, 1, 3  
(c) 2, 3, 1  
(d) 3, 2, 1
2. From which graphical representation, we can calculate partition values?  
(a) Lorenz curve  
(b) Ogive curve  
(c) Histogram  
(d) None of the above
3. The most appropriate diagram to represent the five – year plan outlay of india in different economic sectors is:  
(a) Pie diagram  
(b) Histogram  
(c) Line – Graph  
(d) Frequency Polygon

4. 100 persons are classified into male/female and graduate/non-graduate classes. This data classification is:
- Cardinal Data
  - Ordinal data
  - Spatial Series data
  - Temporal data
5. Frequency density is used in the construction of
- Histogram
  - Ogive
  - Frequency polygon
  - None when the classes are of unequal width
6. Histogram can be shown as
- Ellipse
  - Rectangle
  - Hyperbola
  - Circle
7.  $\log_{2\sqrt{2}}512 : \log_{3\sqrt{2}}324$  is equal to
- 128:81
  - 4:3
  - 3:2
  - None of these
8. Find condition that one root is double to the other in equation  $ax^2+bx+c=0$
- $2b^2=3ac$
  - $b^2=3ac$
  - $2b^2=9ac$
  - None of these
9. If one of the roots of equation  $3x^2-2kx+5=0$  is 2 the value of k is
- 17/4
  - 4/17
  - 17/4
  - None of these
10. If  $x = \frac{1}{5+2\sqrt{6}}$  then the value of  $x^2-10x+1$  is
- 0
  - $\sqrt{15} + \sqrt{3}$
  - 10
  - None of these
11. If  $b_{xy}=1.56$  and x and u are related to  $3x+4u-9=0$  and Y and v are related to  $4y-5v+6=0$  the regression co efficient  $b_{uv}$  is
- 1.46
  - 1.46
  - 1.56
  - None of these

12. If 10 is added to all the observations the C/V is 12% and if 10 is subtracted from all the observations the C/V is 24%, the present coefficient of variation is
- 16 %
  - 21%
  - 28%
  - None of these
13. In a manufacturing unit if 1.50% items produced are defective find probability out of 200 items more than 2 items are defective
- 50%
  - 57.50%
  - 05%
  - None of these
14. If sum of Mean and variance of 5 trials is 1.80 the distribution is
- symmetrical
  - positively skewed
  - negatively skewed
  - None of these
15. A 4 digit number is formed with 4, 6, 7, 9 and 5 find probability the number is greater than 6500
- $\frac{70}{100}$
  - $\frac{33}{120}$
  - $\frac{16}{60}$
  - None of these
16. The coefficient of variance will -----by adding some number in all the observations
- increase
  - Decrease
  - will remain unaffected
  - None of these
17. 6 married couples are gathered in a room, two persons are selected find probability one gentleman and one lady who is not the spouse of selected gentleman
- 15/33
  - 12/33
  - 25/66
  - None of these
18. Marks obtained by number of students are assumed to be normally distributed with Mean 65 and variance 25. If 3 students are selected at random, the probability that exactly 2 will have marks more than 70.
- 0.07
  - 0.08
  - 0.06
  - None of these
19. If  $(\log_{\sqrt{x}}2)^2 = \log_x 2$  the value of x will be
- 16
  - 32

- c) 8  
d) None of these
20. The sum of three numbers in GP is 28. When 7, 2 and 1 are subtracted from the terms respectively the resulting numbers are in A.P. What is the sum of square of numbers?  
a) 510  
b) 456  
c) 400  
d) 336
21. A sum of money becomes Rs 27,900 in 3 years and Rs 41,850 in 6 years at a certain rate of interest on annual compounding the value of investment is  
a) 16080  
b) 18,600  
c) 18060  
d) 16800
22. A certain sum amounts to Rs 15,748 in 3 years at simple interest @  $r\%$  p.a. the same sum amounts to Rs 16,510 at 2% higher  $(r + 2)\%$  p.a. on simple interest the rate of interest is  
a) 10%  
b) 8%  
c) 12%  
d) 6%
23. A biased coin is tossed such that probability of getting head is thrice the probability of getting tail. Find probability of all heads if coin is tossed 4 times  
a)  $\frac{81}{128}$   
b)  $\frac{81}{256}$   
c)  $\frac{18}{81}$   
d)  $\frac{2}{5}$
24. 3 Cards are drawn from a pack of cards find Probability all are of same suit  
a)  $\frac{286}{5525}$   
b)  $\frac{800}{5525}$   
c)  $\frac{4}{5525}$   
d) None of these
25. A person on tour has Rs 9600 for his expenses. If his tour is extended by 16 days he has to cut down daily expenses by Rs 20 his original duration of tour was  
a) 48 days  
b) 64 days  
c) 80 days  
d) None of these
26. Time reversal & factor reversal are:  
(a) Quantity index  
(b) Ideal index  
(c) Price Index  
(d) Test of consistency
27. For a normal distribution having mean = 2 and variance = 4, the fourth central moment is  
(a) 16

- (b) 32  
(c) 48  
(d) 64
28. The salaries of A, B and C are in the ratio 2 : 3 : 5. If increments of 15%, 10% and 20% are allowed respectively to their salary, then what will be the ratio of their salaries?  
(a) 3 : 3 : 10  
(b) 10 : 11 : 20  
(c) 23 : 33 : 60  
(d) Cannot be determined
29. If  $A = \{x : x^2 - 3x + 2 = 0\}$ ,  
 $B = \{x : x^2 - 4x - 12 = 0\}$ , then  
B-A is Equal to  
(a)  $\{-6\}$   
(b)  $\{1\}$   
(c)  $\{1, 2\}$   
(d)  $\{-2, 6\}$
30.  $\int_1^2 e^x \left( \frac{1}{x} - \frac{1}{x^2} \right) dx =$   
(a)  $e \left( \frac{e}{2} - 1 \right)$   
(b)  $e(e - 1)$   
(c)  $a$   
(d)  $e^2(e - i)$
31. Find the wrong term in: G4T, J10R, M20P, P43N, S90L  
(a) M20P  
(b) P43N  
(c) J10R  
(d) G4T

**A, B, C, D, E, F and G are sitting in a straight-line facing North. There is only one person between F and C. E sits between A and D. There are only two persons between E and G. F sits on the immediate left of A, and sits in the middle of the row.**

32. How many persons are there between E & F?  
(a) 1  
(b) 2  
(c) 3  
(d) 4

33. Who among the following sit at the extreme ends of the row?
- (a) D, B
  - (b) G, C
  - (c) B, C
  - (d) None of these
34. Who among the following sit on the immediate left of D?
- (a) G
  - (b) E
  - (c) F
  - (d) B
35. Who among the following sits third to the left of A?
- (a) C
  - (b) G
  - (c) B
  - (d) E
36. Which is true with regard to B?
- (a) B is second to the left of A.
  - (b) B is fourth to the left of G.
  - (c) B sits at the extreme right.
  - (d) B sits at the extreme left.
37. Pointing to a lady in a photograph, Ram said "Her son's father is the son in law of my mother". How lady is related to ram
- (a) Aunt
  - (b) Cousin
  - (c) Sister
  - (d) Mother
38. A girl introduced, a boy as the son of daughter of father of her uncle. The boy is girl's
- (a) Son
  - (b) Brother
  - (c) Daughter
  - (d) Son-in-Law
39. In the parameter of Poisson distribution is  $m$  and  $(\text{Mean} + \text{S.D.}) = \frac{6}{25}$  then find  $m$ :
- (a)  $\frac{3}{24}$
  - (b)  $\frac{1}{25}$

(c)  $\frac{4}{25}$

(d)  $\frac{3}{5}$

40. In a hall there are 10 chairs Numbered 1 –10. 3 ladies and 4 gents are made to sit, if ladies opt first out of the chairs Numbered 1 to 5 and gents opt out of the remaining find in how many ways they can be made to sit
- (a) 2,100  
 (b) 50,400  
 (c) 8,400  
 (d) None of these
41. Find x if  $|3x-9| \leq 15$
- (a)  $-5 \leq x \leq 5$   
 (b)  $-2 \leq x \leq 8$   
 (c)  $x \geq 8$   
 (d) None of these
42. Given the weights for the numbers 1, 2, 3.....n are respectively  $1^3, 2^3, 3^3, \dots, n^3$  then weighted HM is \_\_\_\_.
- (a)  $\frac{3n(n+1)}{2(2n+1)}$   
 (b)  $\frac{2n(n+1)}{3(2n+1)}$   
 (c)  $\frac{2n(n+1)}{(2n+1)}$   
 (d) None of these
43. The ratio of principal and the compound interest value for three years (compounded annually) is 216: 127 The rate of interest is:
- (a) 0.1567  
 (b) 0.1777  
 (c) 0.1667  
 (d) 0.1588
44. Repayment of loan is
- (a) Loan  $\times$  discounting factor  
 (b) Loan  $\times$  compounding factor  
 (c) loan  $\div$  discounting factor  
 (d) none of these
45. The salvage value of plant is Rs 23,00,000 which was purchased for Rs 54,00,000 and was depreciated @ 15% what is the age of plant
- (a) 5 years 7 months  
 (b) 5 years 3 months  
 (c) 5 years 9 months  
 (d) none of these

46. A 4-digit number is formed with 2 3 4 6 8 and 9 the probability number will be between 3400 and 6200
- (a)  $\frac{2}{10}$   
 (b)  $\frac{4}{12}$   
 (c)  $\frac{3}{10}$   
 (d)  $\frac{7}{90}$
47. Six flats are on a floor in two rows facing North and South are allotted to P Q R S T and U. If Q gets a North facing flat not next to S. S and U get diagonally opposite flats. R next to U gets South facing flat while T gets north facing flat. Who has flat between Q and S.
- (a) t  
 (b) r  
 (c) u  
 (d) none of these
48. Find missing 13, 13, 65, 585, 7605, 129285?
- (a) 24566415  
 (b) 2235675  
 (c) 2980565  
 (d) None of these
49. While computing co variance of 10 pairs a pair (8, 6) is wrongly taken as (6, 8) if computed mean of X, Y and covariance between them are 40, 50 and 60 respectively. The correct covariance (x and y) is
- (a) 60  
 (b) 56.76  
 (c) 58.04  
 (d) none of these
50. An experiment succeeds twice as often as it fails. What is the probability out of 5 trials in majority of the cases it will succeed.
- (a)  $\frac{33}{81}$   
 (b)  $\frac{46}{81}$   
 (c)  $\frac{64}{81}$   
 (d)  $\frac{25}{81}$
51. In a Binomial Distribution with 6 trials the probability of 3 and 4 successes is found to be .2457 and .0819 respectively the value of P is
- (a)  $\frac{2}{13}$   
 (b)  $\frac{4}{13}$   
 (c)  $\frac{5}{13}$   
 (d) none of these
52. Sum of n terms of two APs are in the ratio of  $(7n - 5) : (5n + 17)$ . Then which of the term of APs are equal to each other
- (a) 12  
 (b) 6  
 (c) 3



- (d) None of these
53. If set  $A = \{1, 2, 3, 4\}$  the cardinal factor of power set A is  
 (a)  $2^4$   
 (b)  $2^8$   
 (c)  $2^{16}$   
 (d) None of these
54. A loan of ₹ 50,00,000 repayable in 60 EMIs was reconstructed after making 15 payments to EQIs. If the rate of interest is @9% p.a. find the computer EQI  
 (a) 3,37,430  
 (b) 3,13,324  
 (c) 3,49,249  
 (d) None of these
55. The rates of return on three securities are 150% 200% and 240% the average profit is  
 (a) 193.42%  
 (b) 196.67%  
 (c) 199.87%  
 (d) none of these
56. An amount of Rs 34 lakh was given to 2 persons @ 12% pa and @ 15% pa on simple interest if total interest after 2 years received is Rs 9,52,000. Find higher amount lent.  
 (a) Rs 11.33,333  
 (b) Rs 22,66,667  
 (c) Rs 23.87.667  
 (d) None of these
57. If a building is purchased on EMI Of Rs 40,000 @ 9% p.a. for 10 years and after that Rs 60,000 quarterly for next 6 years.  
 (a) Rs 36,10,750  
 (b) Rs 31,57,667  
 (c) Rs 47.89.987  
 (d) None of these
58. A person has 5 children but he can take only 2 along with him in movies. In how many ways he can manage, if the same children can't always go to movie  
 (a) 5  
 (b) 10  
 (c) 4  
 (d) None of these
59. If the word COMMERCE is written in different ways find probability 4 letters are written in between both the Ms  
 (a)  $\frac{3}{28}$   
 (b)  $\frac{5}{28}$   
 (c)  $\frac{6}{28}$   
 (d) None of these
60. The cost function of a company is given by:  
 $C(x) = 100x - 8x^2 + \frac{x^3}{3}$ , the output at which marginal cost is minimum  
 (a) 18 units  
 (b) 10 units

- (c) 8 units  
(d) None of these
61. An amount becomes double in 6 years if compounded semi-annually. How long it will take in becoming the amount triple if compounded monthly.  
(a) 8 years 5 months  
(b) 9 years 3 months  
(c) 9 years 5 months  
(d) None of these
62. The effective rate of interest is @ 19.75% p.a. if compounded fortnightly, the nominal rate of interest will be  
(a) 18%  
(b) 24%  
(c) 27%  
(d) None of these
63.  $\frac{20^n + 5^n}{20^{n-1} + 5^{n-1}} = 10$  find (n+3)  
(a) -1/2  
(b) 7/2  
(c) 5/2  
(d) None of these
64. If  $\alpha$  &  $\beta$  are the roots of equation  $4x^2 - 16x + 24 = 0$  the value of  $3\alpha^3 + 4\alpha^2 + 5\alpha + 3\beta^3 + 4\beta^2 + 5\beta$  is  
(a) 12  
(b) 18  
(c) 24  
(d) None of these
65. If ALUMINUS: is coded as ULAIMSUN and HUMANNITY is coded as MUHNNAYTI then How the word COURTESY shall be coded  
(a) UOVTREYS  
(b) UOVRTYES  
(c) UOCTRYSE  
(d) None of these
66. Find the missing value 1, 14, 39, 80, 141 .....  
(a) 226  
(b) 312  
(c) 207  
(d) None of these
67. Find the missing value 2, 20, 90, 272 .....  
(a) 432  
(b) 525  
(c) 650  
(d) None of these
68. Find sum of all 4-digit numbers formed with 0, 4, 5, 7,  
(a) 1,03,104  
(b) 1.06.654  
(c) 1,03,352  
(d) None of these

69. The Cost of producing 400 item is 2300 and cost of producing 900 item is 3800, the cost of producing 1500 items is  
 (a) 4580  
 (b) 5600  
 (c) 5740  
 (d) None of these
70. If 4<sup>th</sup> central moment in poisson distribution is computed as 243 the C/V is computed as  
 (a) 33.33 %  
 (b) 52.17%  
 (c) 46.80%  
 (d) None of these
71. A plant was depreciated @15% for first 4 years @ 20% for next 3 years and @25% for another 3 years. If written down value of the plant after 10 year is ₹ 3,74,000 the cost of plant is  
 (a) Rs 33,16,820  
 (b) Rs 31,90,870  
 (c) Rs 11,57,900  
 (d) None of these
72. Surjective function is  
 (a) One to one into  
 (b) Many to one into  
 (c) Any onto function  
 (d) None of these
73. Group index number is represented by  
 (a)  $\frac{\text{Price Relative for the year}}{\text{Price Relative for the previous year}} \times 100$   
 (b)  $\frac{\sum(\text{Price Relatice} \times w)}{\sum w}$   
 (c)  $\frac{\sum(\text{Price Relatice} \times w)}{\sum w} \times 100$   
 (d) None of these
74. A company had declared dividend @ Rs 220 per share just 4 years back with a growth of 8% if Cost of equity is computed as 23% the Market Price of share is  
 (a) ₹ 2015  
 (b) ₹ 1995  
 (c) ₹ 1880  
 (d) ₹ None of these
75. A company wants to invests 200 lacs in a technical feasible project which may give annual income of Rs 20 lacs for next 10 years and Rs 5,00,000 pa after that on perpetual basis, if opportunity cost is 13% pa find whether project is viable financially  
 (a) Viable and should be invested  
 (b) Not viable and should not be invested  
 (c) Opportunity cost is very high so it is not viable  
 (d) None of these
76. If co domain is equal to Range the function is  
 (a) one to one onto  
 (b) many to one into  
 (c) many to many onto

- (d) none of these
77. If Means of X and Y are 20 and 40 respectively and regression coefficient Y on X is 1.608 the line Y on X will be  
 (a)  $Y=1.608X + 7.84$   
 (b)  $Y=1.56 X + 4.84$   
 (c)  $Y=1.608X + 4.84$   
 (d) none of these
78. The standard error of estimate of Y ON X is  
 (a)  $SD_x$  (co efficient of alienation)  
 (b)  $SD_y$  (co efficient of alienation)  
 (c)  $SD_y$  (non determination)  
 (d) None of these
79. Find annual provision if 1,00,000 12% Debentures of ₹ 200 are to be redeemed after 7 years at 8% discount if opportunity cost is 12% p.a.  
 (a) 18,23,786  
 (b) 19,28,980  
 (c) 18,73,780  
 (d) 40,31,770
80. "Is equal to" over the set of all real numbers the Relation is  
 (a) Reflexive  
 (b) Symmetrical  
 (c) Transitive  
 (d) Equivalence
81. There are two bags 1 and 2 containing 5 Red and 6 black balls and 4 Red and 7 black balls . A pair of dice is thrown if difference in 2 numbers is 4 ball drawn from bag or else from bag no 2 find probability drawn ball is not Red  
 (a)  $\frac{62}{99}$   
 (b)  $\frac{37}{99}$   
 (c)  $\frac{33}{99}$   
 (d) None of these
82. X is a Binomial variable with parameters 6 and  $\frac{1}{2}$  and y is another variable with parameters 4 and  $\frac{1}{2}$ , the probability of  $(x + y > 0)$  is  
 (a) .0010  
 (b) .9990  
 (c) .8976  
 (d) None of these
83. In a state the per capita income is computed as 43,000 with Range Deviation 26,000 but 10% people are living below poverty line, the income at poverty line is fixed at ( $z = 1.29$  at 0.40)  
 (a) 25900  
 (b) 33750  
 (c) 26230  
 (d) none of these
84. In a Probability Distribution with maximum variance the non probability is calculated as  
 (a)  $\frac{1}{2}$

- (b)  $\frac{2}{3}$   
 (c)  $\frac{1}{3}$   
 (d) None of these
85. A company suffers a loss of Rs 1,000 if there is no sale at all. The MR and MC are  $50-4x$  and  $x-10$  respectively find the maximum Revenue of the unit  
 (a) Rs 312  
 (b) Rs 600  
 (c) Rs 288  
 (d) None of these
86. For any two events A and B:  
 (a)  $P(A - B) = P(A) - P(B)$   
 (b)  $P(A - B) = P(A) - P(A \cap B)$   
 (c)  $P(A - B) = P(B) - P(A \cap B)$   
 (d)  $P(B - A) = P(B) + P(A \cap B)$
87. Two dice with face marked 1, 2, 3, 4, 5, 6 are thrown simultaneously and the points on the dice are multiplied together. The probability that product is 12 is:  
 (a)  $\frac{4}{36}$   
 (b)  $\frac{5}{36}$   
 (c)  $\frac{12}{36}$   
 (d) None
88. Choose the missing term out of the given alternatives.  
 PG, NJ, LM, JP ?  
 (a) RG  
 (b) GR  
 (c) HS  
 (d) SH
89. If  $x = 6^{1/3} + 6^{-1/3}$  the value of  $18x^3 - 54x$  is  
 (a) 111  
 (b) 37  
 (c) 108  
 (d) none of these
90. If  $x = \log_a bc$ ,  $y = \log_b ca$  and  $Z = \log_c ab$  the value of  $xyz - x - y - z$  is equal to  
 (a) 0  
 (b) 1  
 (c) 2  
 (d) 3
91. If CPI IN 2022 is increased from 2021 to 132% and price index of food item is increased to 124% while price index of other item is increased to 151% the weight of other item is  
 (a) 70  
 (b) 30  
 (c) 23  
 (d) 63
92. If the CPI computed by Dr Bowley is 124% and by Fisher method it is computed as 143% the CPI by Lespeyers method is  
 (a) can not be computed  
 (b) Data given is incorrect  
 (c) 136%  
 (d) 140%
93. The purchasing power of money is reduced by 34% and DA is increased by 55% the labour union is on strike for increases in salary. The strike is  
 (a) Justified  
 (b) Unjustified

- (c) Illegal  
(d) Data given is not correct to decide
94. Temporal Data is  
(a) Data that represents state in time  
(b) Data taken from old census Report  
(c) Data taken for multiple purpose  
(d) Data rejected by the authorities
95. If  $x$  and  $y$  are related to  $4x + 6y - 12 = 0$  variance of  $x$  is computed as 9 the variance of  $Y$  is  
(a) 4  
(b) 6  
(c) -6  
(d) none of these
96. If the slope of the regression line is calculated as 5.50 and the intercept is 15 then value of  $y$  when  $x$  is 6 is  
(a) 88  
(b) 48  
(c) 18  
(d) 78
97. Find the missing term 13 53 186.50 560.50 -----2805.50  
(a) 1402.25  
(b) 1397.50  
(c) 1298.75  
(d) none of these
98. A is the son of C who is sister of Q, Z is the mother of Q and P is the son of Z Which of the statements are true  
(a) P and A are cousins  
(b) P is the maternal uncle of A  
(c) Q is the maternal grand father of A  
(d) C and P are sisters
99. If point B is 25 m south of point A and point C is 30 m east of point B, point D is 15 m north of point C Point E is 10 m west of point D. If a point X is 30 m east of Point A Then point D is in which direction and what distance from point X  
(a) 10 m North  
(b) 5 m North  
(c) 15 m South  
(d) 10 m south
100. Find odd one out 51 64 78 91 104 117  
(a) 64  
(b) 78  
(c) 104  
(d) 117

**SPACE FOR ROUGH WORK**