**CA Foundation –May-19**

**Question Paper**

**Marks 100 Time : 2 Hours**

# "BUSINESS MATHEMATICS "

1. **if the ratio of two numbers is 7 : 11. If 7 is added to each number then the new ratio will be 2 : 3 then the numbers are.**

**(a) 49, 77** (b) 42, 45

(c) 43,42 (d) 39, 40

02.

log2

2 (512) : log3

324 

(a) 128 : 81 (b) 2 : 3

2

* 1. **3 : 2** (d) None

1. **If** 2*x*2  3*y*2  12 *z*2 **then**

(a)

1  1  1

*x*2 *y*2 *z*2

(b)

1  2  1

*x*2 *y*2 *z*2

(c)

2  1  1

*x*2 *y*2 *z*2

* 1. None

1. **Then value of**

 1 

 1 

 1 

log51 5   log51 6   log51 624  

     

(a) 2 **(b) 3**

(c) 5 (d) 0

1. **Find the condition that one roots is double the other of *ax*2 +*bx* + *c* = 0**
   1. 2*b*2 = 3*ac* (b) b2 = 3*ac*

**(c) 2b2 = 9*ac*** (d) 2b2 > 9*ac*

 log10 2 

**06.** [1 2 3]  log 3  

 10 

log10 4

(a) log10 (1521) **(b) log10 (1152)**

(c) log10 (5211) (d) log10 (2151)

 *x*  *y*

1   2

3  12 4

1. **If** 

1

  

*x* – *y* 2

  

– 4 3

 ***then***

0

     

(a) *x* = 7 y = –3 (b) x = –7, y = –3

(c) x = –7, y = 3 **(d) x = 7, y = 3**

1. **The solution set of the in equation x +2 > 0 and 2x – 6 > 0 is**

(a)

(c)

(–2,)

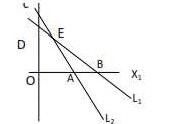
(–,–2)

(d)

(3,) (–,–3)

1. **The common region represented by the following in equalities**

L1 = X1 + X2 < 4; L2 = 2X1 + X2 > 6 X2



* 1. OABC (b) Outside of OAB

(c) 

BCE

**(d)**

 ABE

1. **A sum was invested for 3 years as per C.I and the rate of interest for first year is 9%, 2nd year is 6% and 3rd year is 3% p.a. respectively. Find the sum if the amount in three years is `550?** (a) `250 (b) `300

**(c) `462.16** (d) `350

1. **If *pi*2= Rs.96 and R = 8% compounded annually then P = \_.**

(a) `14,000 **(b) `15,000**

(c) `16,000 (d) `17,000

1. **P = `5,000 R = 15% T = 4½ using** *I*  *PTR* **then I will be**

100

**(a) `3,375** (b) `3,300

(c) `3,735 (d) None of these

1. **A sum of money amounts to `6,200 in 2 years and `7,400 in 3 years as per S.I. then the Principal is.**

(a) `3,000 (b) `3,500

**(c) 3,800** (d) None of these

1. **The Effective Rate of interest does not depend upon**
   1. **Amount of Principal** (b) Amount of interest

(c) Number of Conversion periods (d) None of these

1. **In simple interest if the principal is `2,000 and the Rate and time are the Roots of the equation x2 – 11*x* + 30 = 0 then the simple interest is \_\_\_\_\_\_\_\_\_**

(a) `500 **(b) `600**

(c) `700 (d) `800

1. **The certain sum of money became `692/– in 2 yrs and `800/– in 5 years then the principle Amount is \_\_\_\_\_\_\_\_\_\_**

(a) Rs. 520 **(b) Rs. 620**

(c) Rs. 720 (d) Rs. 820

1. **Determine the present value of perpetuity of Rs. 50,000 per month @ Rate of interest 12% p.a. is \_\_\_\_\_\_\_\_\_\_\_\_\_**

(a) Rs. 45,00,000 **(b) 50,00,000**

(c) Rs. 55,00,000 (d) 60,00,000

1. **A person wants to lease out a machine costing Rs. 5,00,000 for a 10 year period. It has fixed a rental of Rs. 51,272 per annum payable annually starting from the end of first year. Suppose rate of interest is 10% per annum, compounded annually on which money can be invested. To whom this agreement is favourable?**
   1. **Favour for lessee** (b) Favour for lessor

(c) Not for both (d) Can’t be determined

1. **Let a person invest a fixed sum at the end of each month in an account paying interest 12% per year compounded monthly. It the future value of this annuity after the 12th payment is Rs. 55,000 then the amount invested every month is?**

(a) Rs. 4,8,37 (b) Rs. 4,637

**(c) Rs. 4,337** (d) Rs. 3337

1. **If** 11

*C*

*X*

 11 **and** *x*  4 **then the value of** 7 

2 *X* –4 *X*

*C C*

(a) 20 **(b) 21**

(c) 22 (d) 23

1. **Which of the following is not a correct statement**

(a)

*n*  *n*

*n*

*P*

*p*

*n*–1

1. npn = 2. npn-2

(c)

*n*  3.*n*

*n n*–3

*p p*

**(d)**

***n***  ***n*.(*n* –** 1**)**

***n n*–**1

***p***

***p***

1. **If Y = 1+x + x2 + ∞ then x =**

(a)

*y* – 1

*y*

(b)

*y*  1

*y*

(c)

*y* (d)

*y*  1

*y*

*y* – 1

23. If 2 + 6 + 10 + 14 + 18 + + x = 882 then the value of x

(a) 78 (b) 80

**(c) 82** (d) 86

1. **In a G.P, If the fourth term is ‘3’ then the product of first seven terms is**

(a) 35 **(b) 37**

(c) 36 (d) 38

1. **The Ratio of sum of n terms of the two AP’s is (n +1) : (n–1) then the Ratio of their mth terms is**

(a) (m + 1) : 2m (b) (m + 1) : (m –1)

(c) (2m –1 :(m + 1) **(d) m : (m – 1)**

26. If *A* = {1,2,3,4,5,6,7,8,9,}

***B* = {1,3,4,5,7,8};C = {2,6,8,} then find** (A – B) C 

(a) {2,6,} (b) {2,6,8}

1. **{2,6,8,9}** (d) None of these

**27. If *f* (*x*) = *x*2 and** *g*(*x*) 

*x*

then

**(a) go, *f*(3)= 3** (b) go *f* (–3) = 9

(c) go, *f*(9) = 3 (d) go *f* (–9) = 3

**28. A= {1,2,3,4, ............... 10} a relation on** A,R {(x, y)/x y 10, *x* A,yA,X  Y}

R–1 is

**(a) {1,2,3,4,5}** (b) {0,3,5,7,9}

(c) {1,2,4,5,6,7} (d) None of these

then Domain of

1. **If A ={*a, b, c, d*}; B = {*p, q, r ,s*} which of the following relation is a function from A to B**

(a) R1= {(*a*, *p*), (*b*, *q*),(*c*, *s*)}

(b) R2 ={(*p*, *a*}, (*b*, *r*),(d, s)}

(c) R3 ={(*b*, p),(c, s),(b, r)}

(d) R4 = {(*a*, p)(*b*, *r*)(*c*, *q*), (d, s)}

1. **If** 2*x* – 2 *y*  2*x*– *y* then *dy at*

*dx*

*x*  *y*  2

**(a) 1** (b) 2

(c) 4 (d) 5

1. **If the Cost of function of a commodity is given by *C***  150***x* –** 5***x***

2  ***x***3

6

, where **C stands for cost**

and x stands for output. If the average cost is equal to the marginal cost then the output x =

\_\_\_\_\_

(a) 5 (b) 10

**(c) 15** (d) 20

3

*x*

5 – *x*  *x*

32. 

*z*

*dx* 

(a) 1 **(b) ½**

(c) 2 (d) 3/2

**33.** log*e* (*ax* )*dx* 

 *x*2 

 *x* 

 

 2 

 2 

(a)

log*e a*   *c*

(b)

log*e a*   *c*

(c) x log *ax* –*x* + *c* (d) x log *ax* + c

# "LOGICAL REASONING"

1. **If in a certain language, MADRAS is code as NBESBT, how is BOMBAY coded in that language?**
   1. CPNCBX **(b) CPNCBZ**

(c) CPOCBZ (d) CQOCBZ

1. **Which of the following is odd one**
   1. CEHL (b) KMPT

(c) OQTX **(d) NPSV**

43. Which of the following is odd one 4, 12, 44, 176, 890 ....................

(a) 4 (b) 12

**(c) 44** (d) 176

44. 7,23, 47, 119, 167 \_\_\_\_\_\_\_\_\_

(a) 211 (b) 223

**(c) 287** (d) 319

1. **When a person faces north and walk 25 m and she turn left and walk 20m and again turns right and walk 25m, and turns right 25m and turns right and walks 40m in which direction is he now from his starting point.**
   1. North – West **(b) North – East**

(c) South – East (d) South – West

1. **Madhuri moved a distance of 75 meters toward north. She then turned to the left and walking for about 25m, turned left again and walks 80m, finally she turned to the right at an angle of 45o . In which direction was she moving finally?**
   1. South – East (b) South – West

**(c) North – west** (d) North – East

1. **A person facing North 70o clock wise direction moving in clockwise and 300o clock wise direction. Now, in which direction he presently facing.**
   1. North-West (b) South-East

**(c) North-East** (d) Sought-West

1. **Sangeetha leaves from her home. She first walks 30 metres in north – west direction, and then 30 m in south west direction, next she walks 30 metres in south – east direction. Finally she turns towards her house. In which direction is she moving**
   1. North West **(b) North – East**

(c) South – East (d) South – West

1. **Pointing to a photograph, a Man said “His Mother husband’s sister is my aunt”. Then what is relation between a man and he?**
   1. Son (b) Uncle

(c) Nephew **(d) Brother**

1. **Pointing to old man Kailash said “his son is my son’s uncle” How is kailash is related to old man.**
   1. Brother **(b) Either son (or) son-in-law**

(c) Father (d) Grand Father

1. **Five boys A, B, C, D, E are sitting in a row A is to the right of B and E is to the left of B but to the right of C. A is to the left of D who is second from the left end?**
   1. D (b) A

**(c) E** (d) B

1. **5 children are sitting in a row. S is sitting next to P but not T.K is sitting next to R.K is sitting on extreme end. T is not sitting next to K. Who are sitting adjacent to S.**
   1. K & P (b) R & P

(c) Only P **(d) P & T**

1. **Four girls are seated for a photograph. Shikha is left of Reena. Manju is to the right of Reena. Rita is between Reena and Manju. Who is the second left in photograph.**
   1. Reena (b) Manji

**(c) Rita** (d) Shikha

1. **Statement I : Some fools are intelligent Statement II: All intelligent is great Conclusion I: Some fools are great Conclusion II: All greats are intelligent**
   1. **Conclusion I follows** (b) Conclusion II follows

(c) Neither I nor Ii follows (d) Either I nor Ii follows

1. **Statement I: Sohan is good sports man Statement II: Sports man is healthy. Conslusion I: Sohan is healthy Conclusion II: All sports men are good.**
   1. **Conclusion I follows** (b) Conclusion II follows

(c) Neither I nor II follows (d) Either I nor II follows

# "STATISTICS"

1. **series is continuous.**
   1. Open ended **(b) Exclusive**

(c) Close ended (d) Unequal call intervals

1. **Which of the following graph is suitable for cumulative frequency distribution?**
   1. **Ogives** (b) Histogram

(c) G.M (d) A.M

63.. Histogram is used for finding

**(a) Mode** (b) Mean

(c) First Quartile (d) None

1. **Ogive graph is used for finding**
   1. Mean (b) Mode

**(c) Median** (d) None

1. **Histogram can be shown as**
   1. Ellipse **(b) Rectangle**

(c) Hyperbola (d) Circle

1. **The AM of 15 observations is 9 and the AM of first 9 observations is 11 and then AM of remaining observations is**

(a) 11 **(b) 6**

(c) 5 (d) 9

1. **In a moderately skewed distribution the values of mean & median are 12 & 18 respectively.**

The value of mode is

(a) 6 (b) 12

(c) 15 **(d) 30**

1. **Which of the following is positional average?**
   1. **Median** (b) GM

(c) HM (d) AM

1. **For the distribution**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **X** | **1** | **2** | **3** | **4** | **5** | **6** |
| **F** | **6** | **9** | **10** | **14** | **12** | **8** |

The value of median is

(a) 3.5 (b) 3

**(c) 4** (d) 5

1. **For a symmetric distribution**
   1. **Mean = Median = Mode** (b) Mode = 3 Median –2 Mean

1

(c) Mode =

3

Median = ½ (d) None

1. **The sum of mean and SD of a series is a+b, if we add 2 to each observation of the series then the sum of mean and SD is**

**(a) a + b + 2** (b) 6 + a + b

(c) 4 + a – b (d) a + b + 4

1. **Given that**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **X** | **–3** | **–3/2** | **0** | **3/2** | **3** |
| **Y** | **9** | **9/4** | **0** | **9/4** | **9** |

The Karipeason’s coefficient of correlation is

* 1. Positive **(b) Zero**

(c) Negative (d) None

1. **If** ** 2 100 **and coefficient of variation = 20% then** *x* 

(a) 60 (b) 70

(c) 80 **(d) 50**

1. **Coefficient of quartile deviation is ¼ then Q3/Q1 is (a) 5/3** (b) 4/3

(c) ¾ (d) 3/5

1. **Standard deviation is times of**

*MD*  *QD*

(a) 2/3 (b) 4/5

**(c)** (d)

15

8

8

15

1. **70. SD of first five consecutive natural numbers is**

(a) 10 (b) 8

(c) 3 **(d)** 2

1. **71. The Q.D. of 6 numbers 15, 8, 36,40,38,41 is equal to**

(a) 12.5 (b) 25

**(c) 13.5** (d) 37

1. **Given the following series:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **X** | **10** | **13** | **12** | **15** | **8** | **15** |
| **Y** | **12** | **16** | **18** | **16** | **7** | **18** |

The rank correlation coefficient r =

2 *m* (*m*3 – 1)

 2 3

*m* (*m*2 – 1) 

6  *d* 3   2 2

6d

*  *i li* 
  1. 1 –

*i* *d* 12

**(b)** 1 – 

*i* 1

12 

*m*(*n*2 – 1)

*mi* (*m*2 – 1)

*n*(*n*2 – 1)

*m* (*m*2 – 1)

2 1 3

*n*(*n*2 – 1)

*n*(*n*2 – 1)

*i i*

(c)

1 – 6d2  12

*i* 1

(d)

1 – 6d2  12

*i* 1

1. **Find the probable error if** *r* 

2 **and n = 36.**

10

(a) 0.6745 **(b) 0.06745**

(c) 0.5287 (d) None

1. **If the regression line of y on x is given by Y = x + 2 and Karlpearson’s coefficient of correlation**

**is 0.5 then** *y*2 

2

*x*

(a) 3 (b) 2

**(c) 4** (d) None

1. **A.M. of regression coefficients is**
   1. Equal to r **(b) Greater then or equal to r**

(c) Half of r (d) None of these

1. **If a coin is Tossed 5 times then the probability of getting Tail and Head occurs alternatively is**

1

(a)

8

1

(c)

32

**(b)** 1 16

1

(d)

64

1. **According to bayee’s therom,**

*P*(*E IA*) 

*P*(*Ek* )*P*( *A*/ *Ek* )

here

*k n*



*i*1

*P*(*Ei* )*P*( *A*/ *Ei* )

1. **E1, E2 are mutually exclusive**
2. P(E/At), P(E/A2). are equal to 1
3. *P*(*A*t/*E*), *P*(*A*2/*E*). are equal to 1
4. *A* & *Ei* ‘s are disjoint sets.
5. **If mean and variance are 5 and 3 respectively then relation between p & q is**
   1. p > q **(b) p < q**

(c) p = q (d) p is symmetric

1. **4 coins were tossed 1600 times. What is the probability that all 4 coins do not turn head upward at a time?**

(a) 1600*e*–100 (b) 1000*e*–100

(c) 100*e*–1600 **(d) *e*–100**

1. **For a normal variable, if the first moment about 4 is 6, then the A.M is**

(a) 1.5 (b) 2

(c) 10 (d) 24

1. **If Y > x then mathematical expectation is**

(a) E(X) > E(Y) **(b) E(X) < E(Y)**

(c) E(x) = E(Y) (d) E(X) . E(Y) = 1

1. **The prices and quantities of 3 commodities in base and current years are as follows:**

|  |  |  |  |
| --- | --- | --- | --- |
| **P0** | **P1** | **q0** | **q1** |
| **12** | **14** | **10** | **20** |
| **10** | **8** | **20** | **30** |
| **8** | **10** | **30** | **10** |

The Laspayer price index is

**(a)** 118.13 **(b) 107.14**

(c) 120.10 (d) None

1. **The cost of living index numbers in years 2015 and 2018 were 97.5 and 115 respectively. The salary of a worker in 2015 was Rs. 19500. How much additional salary was required for him in 2018 to maintain the same statement of living as in 2015?**

(a) Rs. 3000 (b) 4,000

**(c) 3,500** (d) 4,500

1. **Which is called an ideal index number?**
   1. Laspayer’s index number (b) Pasche’s index number

**(c) Fisher’s index number** (d) Marshall Edgeworth index number

1. **Trend in semi average is**
   1. **Linear** (b) Parabola

(c) Exponential (d) None of these

1. **The most commonly used mathematical method for finding secular trend is**
   1. Moving average **(b) Semi averages**

(c) Least squares (d) None of these

1. **In Semi averages method, if the number of values is odd then we drop:**
   1. First value (b) Last value

**(c) Middle value** (d) Middle two values

# BUSINESS MATHEMATICS LOGICAL REASONING & STATISTICS

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | **A** | 11 | **B** | 21 | **D** | 31 | **C** | 41 | **B** | 51 | **C** | 61 | **B** | 71 | **A** | 81 | **B** | 91 | **A** |
| 2 | **C** | 12 | **A** | 22 | **A** | 32 | **C** | 42 | **D** | 52 | **D** | 62 | **A** | 72 | **B** | 82 | **B** | 92 | **B** |
| 3 | **C** | 13 | **C** | 23 | **C** | 33 | **A** | 43 | **C** | 53 | **C** | 63 | **A** | 73 | **D** | 83 | **A** | 93 | **C** |
| 4 | **B** | 14 | **A** | 24 | **B** | 34 |  | 44 | **C** | 54 | **A** | 64 | **C** | 74 | **A** | 84 | **B** | 94 |  |
| 5 | **C** | 15 | **B** | 25 | **D** | 35 |  | 45 | **B** | 55 | **A** | 65 | **B** | 75 | **C** | 85 | **D** | 95 |  |
| 6 | **B** | 16 | **B** | 26 | **C** | 36 |  | 46 | **C** | 56 |  | 66 | **B** | 76 | **D** | 86 | **C** | 96 |  |
| 7 | **D** | 17 | **B** | 27 | **A** | 37 |  | 47 | **C** | 57 |  | 67 | **D** | 77 | **C** | 87 | **B** | 97 |  |
| 8 | **B** | 18 | **A** | 28 | **A** | 38 |  | 48 | **B** | 58 |  | 68 | **A** | 78 | **B** | 88 | **B** | 98 |  |
| 9 | **D** | 19 | **C** | 29 | **D** | 39 |  | 49 | **D** | 59 |  | 69 | **C** | 79 | **B** | 89 | **C** | 99 |  |
| 10 | **C** | 20 | **B** | 30 | **A** | 40 |  | 50 | **B** | 60 |  | 70 | **A** | 80 | **C** | 90 | **C** | 100 |  |