**CA Foundation – November 2019**

**Question Paper MCC, Jaipur. Based on Memory)**

**Marks 100 Time : 2 Hours**

**"BUSINESS MATHEMATICS”**

1 The two numbers are in ratio 3 : 4. The difference between their squares is 28. Find the greater number.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| (a) | 12 |  |  | **(b)** | **8** |
| (c) | 16 |  |  | (d) | 10 |
| **If** |  |  |  |  |  |
| **(**a) | 1 |  |  | (b) | 3 |
| (c) | 9 |  |  | **(d)** | **27** |
| **If** |  | **then** | **=** |  |  |
| **(a)** |  |  |  | (b) |  |
| (c) |  |  |  | (d) |  |

2.

3.





4. If  then the value of the expression x2– 10x + 1 is (a) 0 (b) 10

(c) 26–12  (d) 

|  |  |  |  |
| --- | --- | --- | --- |
| **5** | **log0.01 (10,000) = x; Find the value of x?** |  | |
|  | (a) 1  (c) – 4 | **(b)**  (d) | **– 2**  2 |

1. **logxy2 – logy = log (x+y) Find the value of y in term of x**
   1. x–1 (b) 

**(c) ** (d) x+1

1. **Find the root of the equations. if 4x. 8y = 128 and 3x/27y= **

|  |  |  |
| --- | --- | --- |
| **(a) 2, 1**  (c) 2, –1 | (b)  (d) | –2, 1  1, 2 |
| **The three roots of equation is. x3+9x2–x–9=0** | | |
| **(a) 1,-1,-9** | (b) | 1,-1,9 |
| (c) 1,1,9 | (d) | -1,-1,-9 |

8

1. **Find the value of K so that x =2 is a root of the equation 3x2 – 2kx + 5 = 0 (a) 17/4** (b) 4/17

(c) –17/4 (d) –4/17

1. **The solutions of the set of inequations 2x+y > 12, 5x + 8y > 74, x + 6y > 24, x > 0, y > 0 are**

|  |  |  |
| --- | --- | --- |
| **(a) (24,. 0),** | (b) | (0, 24), (2, 8), (0, 12), |
| (c) (8, 4), (2, 8), (0, 12), (0, 24) | (d) | (8,4), (0, 0) (0,6) (2,0) |

1. **The present value of a scooter is ` 7290. The rate of depreciation is 10%. What was its value 3 years ago?**

**(a) 10,000** (b) 10010

(c) 9990 (d) 12000

1. **The difference between compound interest, compounded semi annually and simple interest on `400 at 10% p.a. for one year.**

**(a) ` 1** (b) ` 28

(c) ` 35 (d) ` 40

1. **If the interest of a money is equal to its one by nine, the rate of interest and time are equal then find rate of interest is.**

|  |  |  |
| --- | --- | --- |
| **(a) %** | (b) | 4½% |
| (c) 3% | (d) | 3.5% |

1. **1/7 of a money is deposited at 4% per annum , ½ of a money deposited at 5% per annum and the remaining at the rate of 6%, then total interest gained** `**730 find deposit amount is**

**(a) ` 14000** (b) `15500

(c) `12800 (d) `14500

1. **Ram deposited** `**12000 in a bank at 10% per annum and remaining amount deposit in other bank at 20% per annum. if he received interest according to 14% per annum find the Ram's amount.**

**(a) `20000** (b) `22000

(c) `30000 (d) `25000

1. **In how much time the S.I. on a certain sum becomes 0.125 times to its principle at 10%**

p.a. is

(a) 1.00 yrs **(b) 1.25 yrs**

(c) 1.50 yrs (d) 2.00 yrs

1. **If the difference between interest received by two persons A and B on the same sum of**

`1500 for 3 years Rs. 18. Then what is the difference between the two rates of interest.

(a) 1% (b) 2.5%

(c) % **(d) 0.4%**

1. **In what time will a sum Rs. 800 amounts to Rs. 882 at 5% p.a. compounded annually**
   1. 1 yrs **(b) 2 yrs**

(c) 3 yrs (d) 4 yrs

19. If the compound interest on a certain sum for 2 years at 3% p.a. is `1015. What would be the simple interest on the sum at the same rate and same time is

**(a) 1005** (b) 1010

(c) 1000 (d) 1003

1. **The useful life of a machine whose cost is** ` **10,000 is 10 years. If it depreciates at 10%**

p.a. then the scrap value of the machine is.

(a) 3486.70 (b) 3158.30

**(c) 3500** (d) 7033

1. **Find the effective rate of interest if an amount of `30,000 deposited in a bank. For 1 year at the rate of 10% p.a. compounded semi annually.**

(a) 10.05% (b) 10.10%

(c) 10.20% **(d) 10.25%**

1. **The present population of a town is 25,000. If it grows at the rate of 4%, 5%, 8% during 1st year, 2nd year, 3rd year respectively. Then find the population after 3 years.**

**(a) 29,484** (b) 29,844

(c) 29,448 (d) 28,944

1. **An amount 35000 with the rate of interest is 7% per annum, it is compounded on a monthly basis, then tell the effective rate of interest.**

**(a) 7.22%** (b) 7.64%

(c) 7.0%. (d) 7.5%

1. **Find the future value of annuity of `500 is made annually for 7 years interest rate of 14% compound at annually. Given that (1.14)7 = 2.5023**

(a) ` 5635.35 **(b) ` 5365.35**

(c) ` 6535.35 (d) ` 6355.35

1. **How many number divisible by 5 of 6 digit can be made from the digit 2, 3, 4, 5, 6, 7 (a) 120** (b) 600

(c) 240 (d) none

1. **5 boys and 3 girls are to be seated together such that no two girls are together (a) 14,400** (b) 2400

(c) 720 (d) None of these

1. **Out of 6 Boys & 4 girls, Find the number of ways for selecting 5 member committee in which there is exactly two girls ?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **(a) 120** | | (b) | 1440 |
| (c) 720 | | (d) | 71 |
| **28** | **if np5 :np3 is 2:1 than value of n is** | |  |  |
|  | (a) 2 | | (b) | -5 |
|  | (c) -2 | | **(d)** | **5** |
| **29 In the series 25, 5, 1, 1/3125 which term is 1/3125?** | | | | |
| **(a) 8th term** | | | (b) | 9th term |
| (c) 15th term | | | (d) | None of these |
| **30 The sum of five terms of AP is 75 find the 3rd term is.** | | | | |
| (a) 20 | | | (b) | 30 |
| **(c) 15** | | | (d) | None of these |
| **31 (c+a-b)/b, (a+b-c)/c, (b+c-a)/a are in AP then a,b,c are in** | | | | |
| (a) AP | | | (b) | GP |
| **(c) HP** | | | (d) | None of these |
| **32 The sum of series 1/2+1/32+1/23+1/34 up to infinity is**  (a) 25/24 **(b) 19/24** | | | | |
| (c) 1/12 | |  | (d) | None of these |
| **33**  ***f*(*x*) =** | | **then find** |  |  |
| (a) 1 | |  | **(b)** | **0** |
| (c) –2 | |  | (d) | 2 |

34 *f*(*x*) = *f*(*x*–1)+*f*(*x*–2) if f (0)= 0, f(1) = 1, x = 2, 3, 4, then what is *f* (7)

(a) 8 **(b) 13**

(c) 3 (d) 5

35 *f*(*x*) = 2*x*3+1 then what is f–1(x) options

(a) ½ (x–1)1/3 **(b) **

(c)  (d) None of these

1. **Find the value of dy/dx if y=xx**
   1. **xxlogex** (b) 1+logx

(c) ylogx (d) none of these

1. **Find the value of **

**(a) ex(x-1)+c** (a) ex(2x-1)+c

* 1. ex(x-1) (d) None of these

1. **If f(x) = a (x2 + x +1)2 and f1 (–1) = – 6 then the value of a =**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| (a) 1 | | | (b) | 2 |
| **(c) 3** | | | (d) | 4 |
| **39** | **Find the value of** (a) 1/7(4x+5)7+ c (c) 1/4(4x+5)7+ c | | **is equal to**  **(b)**  (d) | **1/28(4x+5)7+ c**  None of these |
| **40** |  |  |  |  |
|  | (a) | 14 | (b) | 104 |
|  | (c) |  | **(d)** |  |

41 Find odd one out; 1, 5, 14, 30, 51, 55, 91, ?

|  |  |  |
| --- | --- | --- |
| (a) 14 | (b) | 55 |
| **(c) 51** | (d) | 91 |
| **Find odd one out ; 5, 10, 17, 27, 37, 50, 65 ?** | | |
| (a) 17 | **(b)** | **27** |
| (c) 37 | (d) | 65 |
| **Find the missing figures; 4, 16, 36, 64, 100 ?** | | |
| (a) 92 | (b) | 121 |
| **(c) 144** | (d) | 169 |

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1. **If "SYSTEM" be coded 131625; then 'TERMS' may be coded as :—**

(a) 62251 **(b) 62451**

(c) 64951 (d) 62415

1. **If "MADRAS" written as "NBESBT"; then "DELHI" may be coded as:—**
   1. EMTIF **(b) EFMIJ**

(c) JEMFT (d) EEMJI

1. **A man started walking West. He turned right. Then again and finally turned left. Towards which direction was he walking now?**
   1. **North** (b) South

(c) West (d) East

1. **A starts form a point and walk 2 km north, then turns left and walk 1 km, then again turns left and walks 2 km. Point out the direction in which he is going now?**
   1. East (b) West

(c) North **(d) South**

1. **A man is moving on cycle and move 4 km South then turns left and move 2km and turns again to the right to move to go more. In which direction is he moving?**
   1. North (b) West

(c) East **(d) South**

1. **If Mohan travels towards north from his house then turn to left, then to south coving equal distance. In each direction to reach Sohan's house. In which direction Mohan's house is form Sohan's house now?**
   1. **East** (b) South

(c) North (d) West

1. **If Shyam sees the rising sun behind the tower and setting sun behind the Railway station from his house. What is the direction of tower from the Railway station?**
   1. South (b) North

(c) West **(d) East**

1. **A man takes his dog for a walk whose house is facing East. He walks first towards west and then walks towards south. In which direction he has to walk now to reach home?**
   1. **North East** (b) West

(c) South (d) North West

1. **5 persons are standing in a line one of the 2 persons at the extreme ends is a professor and the other a business man. An advocate is standing to the right of student. An author is to the left of the business man. The student is standing between the professor and advocate. Counting from the left. The author is at which place?**
   1. 2nd (b) 3rd

**(c) 4th** (d) None of these

1. **Parikh is sitting between narendra and babita, charu is to the left of babita, pankaj she's sitting between charu and ashma they all sitting around a circle facing the center then who is sitting to the right of babita?**
   1. **Parikh** (b) Ashma

(c) Charu (d) Narendr

**Direction (Q. 54-57) Read the following information carefully to answer the give questions.**

**Six members of a family namely A, B, C, D, E and F are travelling together. ‘B’ is the son of C but C is not the mother of B. A and C are married couple. E is the brother of C. D is the daughter of A. F is the brother of B.**

1. **How many male members are there in the family?**

|  |  |  |  |
| --- | --- | --- | --- |
|  | (a) 3 | (b) | 2 |
| **(c) 4** | (d) | 1 |
| **55** | **How many children does A have** |  |  |
|  | (a) 1 | (b) | 2 |
|  | **(c) 3** | (d) | 4 |
| **56** | **What is the relation of E to D**  **(a) Uncle** | (b) | Brother |
|  | (c) Father | (d) | None of these |

|  |  |  |  |
| --- | --- | --- | --- |
| **57** | **Who is the mother of B?** |  | |
|  | (a) C | (b) | D |
|  | (c) F | **(d)** | **A** |

Direction (Q. 58-60)

In each question below are three statements followed by four conclusions numbered I, II, III and IV. You have to take the three given statements to be true even, if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the three statements disregarding commonly known facts:

58. Statements:

|  |  |  |
| --- | --- | --- |
| I. Some fruits are rivers  III. Some rivers are fruits | II.  IV. | Some rivers are boats  Some flowers are fruits |
| (a) Only I & III follows | (b) | Only II & III follows |
| **(c) Only II & IV follows** | (d) | All follows |
| **59. Statements:** |  |  |
| All buildings are Rings |  |  |
| All papers are buildings |  |  |
| All dogs are papers  **Conclusions :** |  |  |
| I. All dogs are rains | II. | Some papers are rains |
| III. Some rains are buildings | IV. | Some rains are papers |
| (a) Only I & II follows | (b) | Only II & III follows |
| (c) Only I, III, IV follows | **(d)** | **All follows** |
| **60. Statements:** |  |  |
| Some flowers are rods |  |  |
| Some rods are doors |  |  |
| Some doors are houses  **Conclusions:** |  |  |
| I. Some houses are flowers | II. | Some doors are flowers |
| III. Some flowers are doors | IV. | No house is flower |
| (a) Either I or II follows | **(b)** | **Either I or IV follows** |
| (c) Only II & III follows | (d) | Only I & IV follows |

1. **Histogram is used for presentation of the following type of series.**
   1. Time Services
   2. **Continuous Frequency Series**
   3. Discrete Series
   4. Individual Series
2. **The graphical representation of cumulative frequency distribution is called–**
   1. Histogram (b) Pie Chart

(c) Frequency Polygon **(d) Ogive**

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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No. of Accidents** | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **Frequency** | **36** | **27** | **33** | **29** | **24** | **27** | **18** | **9** |

In how many cases 4 or more accidents occur ?

(a) 96 (b) 133

**(c) 78** (d) 54

1. **The difference between upper limit and lower limit of a class is called:**
   1. **Class interval** (b) Class boundaries

(c) Mid-value (d) Frequency

65

(a) 1 **(b) 0**

(c) –1 (d) None of these

1. **The median of the following frequency distribution is equal to**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **X :** | **5** | **7** | **9** | **12** | **14** | **17** | **19** | **21** |
| **Y :** | **6** | **5** | **3** | **6** | **5** | **3** | **2** | **4** |

(a) 6 **(b) 12**

(c) 13 (d) 14

1. **Find median from the following data:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Marks** | **0–10** | **10-30** | **30-60** | **60-80** | **80-90** |
| **No. of students** | **5** | **15** | **30** | **8** | **2** |

(a) 8 (b) 30

**(c) 40** (d) 45

1. **Find the mode from the following data:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Class :** | **3–6** | **6–9** | **9–12** | **12–15** | **15–18** | **18–21** | **21–24** |
| **Frequency** | **2** | **5** | **10** | **23** | **21** | **12** | **3** |

(a) 23 (b) 13.3

(c) 12.6 **(d) 14.6**

1. **Find the mode of the following distribution?**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Class :** | **0–7** | **7–14** | **14–21** | **21–28** | **28–35** | **35–42** | **42–49** |
| **Frequency** | **19** | **25** | **36** | **72** | **51** | **43** | **28** |

(a) 24.3 **(b) 25.4**

(c) 72 (d) 21

1. **The arithmetic mean of two numbers is 30 and geometric mean is 24 find the two number**

**(a) 12 and 48** (b) 14 and 46

(c) 10 and 50 (d) 16 and 44

1. **Sum of the squares of deviations is minimum when deviations are taken from**
   1. **Mean** (b) Median

(c) Mode (d) An arbitrary value

1. **What will be the probable value of mean deviation when Q3 = 40 and Q1= 15?**

(a) 17.50 (b) 18.75

**(c) 15.00** (d) 16.00

1. **Find the mean deviation about mean of 4,5,6,8,3**

(a) 5.20 (b) 7.20

**(c) 1.44** (d) 2.33

1. **The mean and coefficiente of variance is 20 and 80 find the value of variance**

(a) 16 **(b) 256**

(c) 36 (d) none

75 Find SD of 1, 2, 3,4, 5,6, 7, 8,9



**(a)** (b) 

(c) (d) None of these

1. **The standard deviation for the set of numbers 1,4,5,7,8, is 2.45 nearly. If 10 is added to each number then new standard deviation is**

(a) 24.45 (b) 12.45

**(c) 2.45** (d) 0.245

1. **If every observation is increased by 5 then:**
   1. SD increase by 5 (b) MD increased by 5

(c) QD increases by 5 **(d) None affected**

1. **For a given distribution the arithmetic mean is 15 and the standard deviation is 9 then the coefficient of variation is equal to**



* 1. (b)

(c) **(d)**

1. **The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?**

(a) 60.4% (b) 70%

**(c) 35.7%** (d) 27.8%

1. **If the equation of the two regression lines are 2x – 3y = 0 and 4y –5x = 8 then the correlation coefficient between x and y is equal to**
   1. **(b)**

(c) (d)

1. **Find correlation coefficient X 5 4 3 2 1**

Y 1 2 3 4 5

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

(c) 0 (d) None of these

1. **If scatter diagram from a line move from lower left to upper right corner then the correlation is.**
   1. **Perfect positive** (b) Perfect negative

(c) Simple positive (d) No correlation

1. **Consider to regression line 3x+2y=26, 6x+y=31 find the correlation coefficient between x and y**

(a) 0.5 **(b) -0.5**

(c) 0.25 (d) -0.25

1. **If correlation coefficient between x and y is 0.5 thenFind the corlication coefficient between 2x –3 and 3–5y is**

(a) 0.5 **(b) –0.5**

(c) 2.5 (d) –2.5

1. **If two letters are taken at random from the word HOME, what is the Probability that none of the letters would be vowels :**

**(a) 1/6** (b) 1/2

(c) 1/3 (d) 1/4

1. **A bag contains 15 one rupee coins, 25 two rupee coins and 10 five rupee coins. If a coin is selected at random from the bag, then the probability of not selecting a one rupee coin is**

:

(a) 0.30 **(b) 0.70**

(c) 0.25 (d) 0.20

1. **The chance of getting 7 or 11 in a throw of 2 dice is**

(a) 7/9 (b 5/9

**(c) 2/9** (d) None of these

1. **In normal distribution what is the ratio of QD:MD:SD**

(a) 12:10:15 (b) 15:10:12

(c) 10:15;12 **(d) 10:12:15**

1. **For a normal distribution ** **mean and standard deviation will be– (a) 3, ½** (b) 3, 

(c) 3,  (d) None of these

1. **Area covered normal curve by** (**  3** )

(a) 68.28% (b) 95.96%

**(c) 99.73%** (d) 99.23%

1. **If x is binomial variate with parameter 15 and 1/3 what is the value of mode of the distribution**

(a) 5 & 6 (b) 5.5

**(c) 5** (d) 6

1. **In poisson distribution which of the following is same.**
   1. **Mean and variance** (b) Mean and SD

(c) Both (d) None of these

1. **If for a binomial distribution B(n,p), ;n = 4 and also P(x=2) =3 P(x=3) then the value of P is equal to**
   1. (b) 1

**(c)** (d) 

1. **Let x be a poisson random variable with parameter λ. Then p(x) is equal to**



* 1. (b)

(c) **(d)**

1. **For year 2015, price index was 267% with base year 2005. The percentage increase in price index over base year 2005 is:**

(a) 267% (b) 67%

**(c) 167%** (d) None of these

1. **The value of the base time period serves as a standard point of comparison.**

|  |  |  |
| --- | --- | --- |
| **(a) True** | (b) | False |
| (c) Both | (d) | None of these |
| **Fisher's ideal formula does not satisfy test?** | | |
| (a) Unit test | **(b)** | **circular test** |
| (c) Time reversal test | (d) | None of these |

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1. **In semi average method, if the no. of value is odd then we drop.**
   1. First term (b) Last term

**(c) Middle term** (d) None of these

1. **The sale of cold drink could go up in summers and go down in the winters is an example of**

|  |  |  |
| --- | --- | --- |
| (a) Secular trend | **(b)** | **Seasonal variation** |
| (c) Cyclical variation | (d) | Irregular variation |
| **Seasonal variations can occurrence within a period of** | | |
| (a) 4 year | (b) | 3 year |
| **(c) 1 year** | (d) | 9 year |

Answer key

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