Test Series: August, 2018

FOUNDATION COURSE

MOCK TEST PAPER - 1

PAPER – 3: BUSINESS MATHEMATICS, LOGICAL REASONING AND STATISTICS

Time Allowed 3 Hours **Maximum Marks: 100**

PART A: BUSINESS MATHEMATICS

QUESTIONS

1. For p, q, r, s > 0 the value of each ratio is

$$\frac{p}{q+r}=\frac{q}{r+s}=\frac{r}{s+p}=\frac{s}{p+q}$$

(a) ½

(b) 1/3

(c) ¼

(d) 1

2. Let x, y and z are three positive numbers and P = $\frac{x+y+z}{2}$; if (p-x): (p-y): (p-z) = 3:5:7 then the ratio of x:y:z is

(a) 4:5:6

(b) 6:5:4

(c) 3:5:7

(d) 7:5:3

3. if x = $\sqrt{\sqrt{6}+6+(\sqrt{7+2\sqrt{6}})}-\sqrt{6}$ then the value

(a) 1

(b) 2

(c) 3

(d) 6

4. If $\log_7\log_5\left(\sqrt{x+5}+\sqrt{x}\right)$ = 0, the value of x is

(a) 0

(b) 1

(c) ¼

(d) 4

5. if α,β,γ are the roots of equation x^3-4x^2+x+6 then the equation roots are $\frac{1}{\alpha},\frac{1}{\beta}and\frac{1}{\gamma}$ is

(a) $x^3-4x^2+x+6=0$

(b) $4x^3-6x^2+x-1=0$

(c) $6x^3+x^2-4x+1=0$

(d) $6x^3-x^2+4x-1=0$

6. For the value of x will the matrix $\begin{bmatrix} 3 & 1 & 2 \\ x & 2 & 4 \\ 2 & 3 & 6 \end{bmatrix}$ become singular:

   (a) 4

   (b) 6

   (c) 8

   (d) 12

7. A number consist of three digit of which the middle one is zero and the sum of other digits is 9. The number formed by interchanging the first and third digits is more than the original number by 297 find the number?

   (a) 306

   (b) 309

   (c) 603

   (d) 307

8. The age of a person is twice the sum of the ages of his two sons and five years ago his age was thrice the sum of their ages. Find his present age.

   (a) 60 years

   (b) 52 years

   (c) 51 years

   (d) 50 years

9. The Solution of the 8 in equality $8x+6 < 12x+14$ is

   (a) (-2,2)

   (b) (0, -2)

   (c) $(2, \infty)$

   (d) $(-2, \infty)$

10. The rules and representations demand that employed should employ not more than 8 expressed leads to 1 fresh one and then fact can be expressed as

    (a) $y \geq x/8$

    (b) $8y \leq x$

    (c) $8y = x$

    (d) $y = 8x$

11. on the average experienced person does 6 units work while A person 2 units of work daily but employer has to maintain as output of at least 24 units of per day. This situation can be expressed as

    (a) $6x +2y \leq 24$

    (b) $6x+2y = 24$

    (c) $6x+2y \geq 24$

    (d) $6x+2y \neq 4$

12. A lent Rs. 6000 to B for 2 years and 1500 to C for 4 years and received total interest of Rs. 900 from both. The rate of interest of Rs. 900 from both. The rate of interest, when simple interest method calculated.

    (a) 5%

    (b) 6%

    (c) 7.5%

    (d) 9%

13. If the difference between the interests received from two different banks on Rs. 5000 for 2 years is Rs. 50 then the difference between this rates.

    (a) 0.25 %

    (b) 0.40%

    (c) 0.50%

    (d) 0.75%

14. The simple interest of P % for P years will be Rs. P on a sum of :

    (a) Rs. $\frac{P}{100}$

    (b) Rs. $\frac{100}{P}$

    (c) Rs. ($\frac{P}{100}$ +1)

    (d) Rs. $\left(\frac{100}{P}-1\right)$

15. The compound interest on a certain sum is Rs. 209 simple interest is Rs. 200 for 2 years. What is the rate per cent for 2 years? what is the rate percent?

    (a) 9%

    (b) 18%

    (c) 4.5%

    (d) 10%

16. The value of a machine depreciates 12% annually. If the present value of Rs.68,150 then its value in 3 years ago was.

    (a) Rs. 1,10,000

    (b) Rs. 1,00,004

    (c) Rs. 92,000

    (d) Rs. 97,000

17. What principal will amount to Rs. 370 in 6 years at 8% p.a. at simple interest

    (a) Rs.210

    (b) Rs.250

    (c) Rs.310

    (d) Rs.310

18. The effective rate of interest is an amount Rs. 25,000 is deposited in a bank for one year at value of 6% per annum compounded semi-annually is

    (a) 5.99%

    (b) 5.95%

    (c) 6.09%

    (d) 6.90%

19. Find the future value of annuity Rs.1000 made annually for 7 years at interest rate of 14% compounded annually is ____ Given $(1.14)^7 = 2.5023$

    (a) Rs.10730.71

    (b) Rs.10735

    (c) Rs.10734

    (d) Rs.10237

20. Rs. 10,000 is paid every year to off a loan, the loan amount if interest be 14% per annum compounded annually is (Given P(10, 0.14) = 5.21611)

    (a) Rs.5216.11

    (b) Rs.1917.13

    (c) Rs. 52,161.1

    (d) Rs. 19,171, 3

21. The present value of Rs.1 to be receive after 3 year compounded annually at 11% interest is

    (a) 0.713

    (b) 0.811

    (c) 0.731

    (d) 0.658

22. Suppose your father decides to gift you Rs. 5,000 every year starts from today for the next four years. You deposit the amount is a bank as and when you receive and get 10% per annum interest rate compound annually. The present value of this annuity is --------(given P(3,0.10) = 2.48685)

    (a) Rs. 17,434.25

    (b) Rs. 17,344.25

    (c) Rs.17434.52

    (d) Rs. 17,344.52

23. Find the Present value of Rs.10,000 to be required after 5 years, If the Interest be 9%. Given $(1.09)^5 = 1.5386$

    (a) Rs.6500

    (b) Rs. 6499.42

    (c) Rs. 6600.52

    (d) Rs.6700.52

24. Rs.500 is invested is invested at the end of each month is an account paying interest 8% per year compounded monthly. The future value of annuity after 10^{th} payment is $(1.08)^{10} = 2.15893$

    (a) Rs.7243.31

    (b) Rs.7423.30

(c) Rs.3451.50

(d) Rs. 3541.50

25. The Sum of all the 4 digits' numbers that can be formed with the digits 3,4,5,5 is

(a) 18887

(b) 33333

(c) 38887

(d) 56661

26. There are 12 points in a plane which are collinear no three points is a straight lie, number of triangular that can be formed with the vertices as there points are:

(a) 216

(b) 220

(c) 110

(d) 108

27. In a lawn different ways can four persons stand in a line for a group photograph.

(a) 24

(b) 16

(c) 8

(d) 64

28. A Company wishes top simultaneously promotes three of its 8 department assistant mangers. In how many ways these promotions can take place?

(a) 336

(b) 56

(c) 8

(d) 1680

29. The n^{th} element of the series 1,3,5,7, …… is

(a) n

(b) 2n-1

(c) 2n+1

(d) none of these

30. If $\frac{1+3+5+.....+n\ \text{terms}}{2+4+6+.....+50\ \text{terms}} = \frac{2}{51}$, then the value of 'n'

(a) 9

(b) 10

(c) 12

(d) 13

31. If 6^{th} and 13^{th} term of an A.P are 15 and 36 respectively the A.P is

(a) 2,5, 8, 11

(b) 1,4,6,8

(c) -4, -1,2,5

(d) 0,3,6,9

32. $\int \frac{1}{\left(e^x-1\right)^2} dx =$

(a) $\log\left|\frac{e^x}{e^x-1}\right| + \frac{1}{e^x-1} + c$

(b) $\log\left|\frac{e^x-1}{e^x}\right| + \frac{1}{e^x-1} + c$

(c) $\log\left|\frac{e^x}{e^x-1}\right| - \frac{1}{e^x-1} + c$

(d) $\log\left|\frac{e^x}{e^x-1}\right| - \frac{1}{e^x+1} + c$

33. If MC = 10-0.01x +0.009$x^2$where x is quantity of production and the total fixed cost = Rs.100, then the total cost is

(a) 100+10x-0.05x^2+0.0009x^3

(b) 100+10x-0.005x^2+0.0003x^3

(c) 100+10x-0.05x^2+0.0009x^3

(d) 100-10x-0.05x^2+0.0009x^3

34 if e^{xy+xy} = e then $\frac{dy}{dx} =$

(a) $-\frac{y}{x}$

(b) $-\frac{1}{xy}$

(c) xy

(d) $\frac{x}{y}$

35. If A and B are two sets A = {1, 2,3,4} and B = {2,3 ,4} then (A-B) U (B-A)

(a) {1}

(b) {1, 2, 3}

(c) {1, 3}

(d) {1, 2, 3, 4}

36. The number of subsets {1,2, 5} is

(a) 3

(b) 8

(c) 6

(d) 9

37. On the set of lines, being Perpendicular is a _____ relation.
    (a) Reflexive
    (b) Symmetric
    (c) Transitive
    (d) None of these

38. A Sum of money doubles itself in 10 years. The number of years it would be trebled itself is :
    (a) 25 years
    (b) 15 years
    (c) 20 years
    (d) None

39. if $x = at^3$; $y = 3bt^2$; then $\frac{dy}{dx}$ =
    (a) $\frac{3x}{2y}$
    (b) $\frac{2y}{3x}$
    (c) $\frac{3y}{2x}$
    (d) $\frac{2x}{3y}$

40. $\int_0^{2a} \frac{f(x)}{f(x)+f(2a-x)}dx$
    (a) a
    (b) -a
    (c) 0
    (d) 2a

PART B: LOGICAL REASONING

41. In a certain code language "EXAM' is coded as 39 'PAPER' is coded at 51 then PASS is coded as
    (a) 39
    (b) 47
    (c) 489
    (d) 51

42. Find the oddman out
    (a) January
    (b) April
    (c) July

(d) October

43. Find the oddman out of the series 5,10, 17, 25

(a) 5

(b) 10

(c) 17

(d) 25

44. Mohan Starts from Point A and walks 1 km towards south, turns left and walks 1 km. Then he turns again and walks 1 km. Now he is facing.

(a) East

(b) West

(c) North

(d) South- West

45 Arun Started from Point A and Walked 10 kms East to Point B , then turned to North and walked 3 kms to point C and then turned West and walked 12 kms to point D , then again turned South and walked 3 kms to point E . In which direction is he form his starting point?

(a) East

(b) South

(c) West

(d) North

46. I Stand with my right hand extended side-ways towards South. Towards which direction will my back be?

(a) North

(b) West

(c) East

(d) South

47. In a certain language MADRAS is coded as NBESBT, how BOMBAY is coded in that language?

(a) CPNCBX

(b) CPNCBZ

(c) CPOCBZ

(d) CQOCBZ

48. There are Five houses A, B, C, C, D, E, A is the right of B and E is left of C and right of A, B is right of D, which house is middle

(a) A

(b) B

(c) C

(d) D

49. Girls are sitting on a bench, Q is the left of R but on the right of P. S is to be right of R but one left of T. Who are the extremes.

(a) P,T

(b) P,S

(c) Q,T

(d) Q,S

50. Five friends P, Q, R, S and T are sitting in a row facing North. Here, S is between T and Q and Q is to the immediate left of R. P is to the immediate left of T. Who is in the middle?

(a) S

(b) T

(c) Q

(d) R

51-52. Read the following information and answer the Questions that follows.

(1) Six friends A, B, C, D, E and F are sitting in a closed circle facing the center.

(2) E is to the left of D.

(3) C is between A and B.

(4) F is between E and A.

51. Who is to the left of B?

(a) A

(b) C

(c) D

(d) E

52. Who is to the right of C?

(a) A

(b) B

(c) D

(d) E

53. In a march past, seven persons are standing in a row. Q is standing left to R but right to P. O is standing right to N and left to P. Similarly, S is standing right to R and left to T. Find out who is standing in middle?

(a) P

(b) Q

(c) R

(d) O

54. A is the sister of B. B is the brother of C. C is the son of D. How is D related to A?

(a) Mother

(b) Daughter

(c) Son

(d) Uncle

55. If P is the husband of Q and R is the mother of S and Q. What is R to P?

(a) Mother

(b) Sister

(c) Aunt

(d) Mother-in-law

56 P is the father of T. T is the daughter of M. M is the daughter of K. What is P to K?

(a) Father

(b) father-in-law

(c) Brother

(d) Son-in-law

57. A and B are brothers. E is the daughter of F. F is the wife of B. What is the relation of E to A?

(a) Sister

(b) Daughter

(c) Niece

(d) Daughter

58. In this questions two statements and two conclusions are given. Its required to check.

Statement

I: Some boys are student.

II: All students are Engineers.

Conclusions:

I. All Engineers are students.

II. Some boys are Engineers.

(a) Only I follows

(b) Only II follows

(c) Both I and II follow

(d) Neither I nor II follows.

59. A conclusion drawn from two given statements, mark the conclusion as

(a) if it is necessarily following the two statements.

(b) if it is only far drawn conclusion

(c) if it is conflict with the two given statements

(d) if it is doubtful

Statement P: The Sum of angles of a triangle ABC is 180^0

Q: Angle A in the triangle ABC = 90^0

Conclusion: Angle B is 45^0

60. Given below are two statements, P and Q followed by a conclusion. marks the conclusion as:

(a) If Statements P supports the conclusion.

(b) If statements Q supports the conclusion.

(c) If Statement P and Q together support the conclusion

(d) If neither statement support the conclusion

Statement P: oxygen is essential for survival

Q: There is no atmosphere on Mars

Conclusion: No living being can survive on Mars.

PART -C : STATISTICS

61. For frequency distribution and time series which from the presentation is rarely used.
    (a) Diagrammatic presentation
    (b) Graphic
    (c) both Diagrammatic and Graphic
    (d) More information required
62. Mid values are also called
    (a) Lower limit
    (b) Upper limit
    (c) Class mark
    (d) None
63. The technician of graphic presentation is extremely helpful in which of the following
    (a) Analysing the changes at different points of Time
    (b) Analysing cause and effect relationship
    (c) Analysing proportional relationship
    (d) Analysing the degree of relationship
64. Statistics Analyses:
    (a) Qualitative
    (b) Quantitative
    (c) Either Qualitative or Quantitative
    (d) Quantitative and Qualitative
65. Frequency Polygon is meant for ---------frequency distribution.
    (a) Single
    (b) Double
    (c) Multi
    (d) None of the above
66. Ogive is also called as
    (a) frequency graph
    (b) cumulative frequency graph
    (c) Histogram
    (d) None of these
67. There are _____ types of frequency curves.
    (a) 1
    (b) 2
    (c) 3
    (d) 4
68. The J shaped curve starts with a _____frequency
    (a) Minimum

(b) Maximum

(c) Either maximum or minimum

(d) none of these

69. If the mean of the set of observations $x_1, x_2, x_3, \ldots\ldots x_n$, is $\overline{X}$, then the mean of the observation x_i+Ki, where I = 1,2,3, ……n and

(a) $\overline{X}+K(n+1)$

(b) $\overline{X}+kn$

(c) $\overline{X}+\frac{K}{n}$

(d) $\overline{X}+\frac{K}{2}(n+1)$

70. The mean age of a group of 100 men and women is 25 years. If the mean age of the group of men is 26, then that of the group of women is 21 then the ratio of women and men in the group:

(a) 1:1

(b) 1:2

(c) 1:3

(d) 1:4

71. The Geometric mean of the series 1, k, k^2, ……., k^n; where k is constant is

(a) $K^{(n+1)/2}$

(b) $K^{n+0.5}$

(c) K^{n+1}

(d) $K^{n/2}$

72. If the SD of a variance X is σ then Quartile Deviation (QD) is

(a) 4/5 σ

(b) 3/2 σ

(c) 2/3 σ

(d) 5/4 σ

73. If X and Y are independent normal Variables with mean 100 and 80 respectively and standard deviation as 4 and 3 respectively. What is the distribution of (X+Y)?

(a) 180, 5

(b) 180, 25

(c) 90, 5

(d) 180, 0

74. The mean salary for a group of for a group of 50 male workers is Rs.4800 per month and that for a group of 50 female workers is Rs. 5600. the combined mean salary is

(a) 5100

(b) 5200

(c) 5300

(d) 5400

75. The relationship between Mean, Median and Mode
    (a) Mean-Mode = 3(Mean-Median)
    (b) Mode = 2 Median – 3 Median
    (c) Median- Mode = 3 (Median-mean)
    (d) none of these
76. The MD about the Mean for the data 6,9,11,10,12,12
    (a) 1.47
    (b) 1.57
    (c) 1.67
    (d) 1.87
77. Coefficient of Variation (CV) is calculated
    (a) $\frac{SD}{AM}\times 100$
    (b) $\frac{AM}{SD}\times 100$
    (c) $\frac{AM}{MD}\times 100$
    (d) none of these
78. Relationship between AM, GM, and HM
    (a) GM ≥AM≥ HM
    (b) AM ≥GM≥ HM
    (c) HM ≥AM≥ GM
    (d) none of these
79. The SD for the data 6, 9, 10, 3, 7 is
    (a) 2.35
    (b) 2.45
    (c) 2.55
    (d) 2.65
80. If P(A) = 1 and P(B) = 1/3 then P(A/B) =
    (a) 1/3
    (b) 2/3
    (c) 1
    (d) ½
81. The probability of A solving a problem is $\frac{7}{12}$ the odds against solving a problem
    (a) 5:7
    (b) 4:7

(c) 5:8

(d) 4:5

82. The correlation coefficient between x and y is 0.8, the correlation coefficient between u and v are 2u + x + 4 = 0 and 4v + 16x + 11 = 0

(a) r = 0.8

(b) r = -0.8

(c) r = 0

(d) r = +1

83. 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) ¼

84. Two events A& B Probabilities 0.24 and 0.52 respectively. If the probability of both A and B occurs simultaneously is 0.15. Then the probability that neither A nor B occur is 0.15, then the probabilities that neither A nor B is.

(a) 0.39

(b) 0.375

(c) 0.61

(d) 0.86

85. From a bag is containing 10 black and 20 white balls, a ball is drawn at random. What is the probability that is black?

(a) ½

(b) 1/3

(c) 1

(d) 2

86. A probability in statistics is given to five students A, B, C, D and E. Their chances of is ½, 1/3,1/4, 1/5, 1/6. What's the probability that the problem will be solved.

(a) 1/6

(b) 5/6

(c) 1

(d) none of these

87. The mean of binomial distribution is

(a) Always more than its variance

(b) always equal to variance

(c) less than its variance

(d) always equal to Standard deviation

88. If X is normal variate with mean 6 and variance 16 then the value of the probability. $P(2 \leq x \leq 10)$ is equal to.

(a) $2P(2 \leq x \leq 10)$

(b) $2P(6 \leq X \leq 10)$

(c) $P(0 \leq x \leq 6)$

(d) $3P(6 \leq x \leq 10)$

89. In Binomial Distribution the trails are statistics

(a) dependent

(b) independent

(c) either independent or dependent

(d) none of these

90. If p is increased for a fixed n; the Binomial distribution shifts to the

(a) Right

(b) left

(c) Above

(d) Below

91. If the relation between two variables x and y in given by $2x+3y+4=0$, then the Value of the correlation coefficient between x and y is

(a) 0

(b) 1

(c) -1

(d) negative

92. For two variables x and y with the same mean the regression equation are $y = 2x-\alpha$ and $x = 2y-\beta$; what is the value of common mean

(a) $-\alpha$

(b) β

(c) 0

(d) $-\beta$

93. Fishers' Ideal Index number is

(a) The median of Laspyre's and Paasches Index numbers

(b) The Arithmetic mean of Laspyres and Paasche's Index numbers

(c) The geometric mean of Laspyres and Paasche's Index Numbers

(d) None of these

94. Using the following table for trend values taken three year Moving Averages using a, b and C are

Year	Profit	3 Yearly Moving Averages
2002	40	----
2003	60	a
2004	68	b
2005	70	c
2006	90	-----

(a) AP

(b) HP

(c) GP

(d) Neither AP or nor HP or GP

95. Fishers Ideal Formula satisfaction

(1) Unit Test

(2) Circular Test

(3) Factor Reversal Test

(4) Time Reversal Test

(a) 1 and 2

(b) 3 and 4

(c) 1 and 3

(d) 1,2 and 3

96. While construction of Index numbers which of the following has to be considered as point of the following has to be considered as point of reference in company various data describing individual behaviour.

(a) Selection of weights

(b) Base Period

(c) Selection of Formulae

(d) Choice of variables

97. If three Judges appointed for a beauty competition, then how many different rank correlation coefficients are required to analyse the judge competition.

(a) 3

(b) 1

(c) 2

(d) 6

98. In a bivariate population, the linear regression lines 3x+y-2=0 and y+x = 0 then the coefficient of correlation is

(a) 0

(b) 1/3

(c) -1/3

(d) $-1/\sqrt{3}$

99. If the two regression co-efficients are 4 and 16 the percentage of unexplained variation is:

(a) 64

(b) 36

(c) 54

(d) 46

100. Which of the options does not contain the proper use of Index numbers

(a) Helpful in policy determination

(b) Useful in Forecasting

(c) Equally useful in all condition for different purpose

(d) Helpful in comparison