

CA (FOUNDATION)

BUINESS MATHEMATICS



MOCK TEST

MARKS- 100

SUGGESTED ANSWER

DURATION- 180 MINUTES

INSTRUCTIONS:

1. All the questions are compulsory.
2. Properly mention Test no. on First Page and Page no. on every answersheet.
3. Working Notes are compulsory wherever required in support of your solution.
4. Do not copy any solution from material.
5. Attempt as much as you know to fairly judge your performance.
6. Please upload your Answer Sheet Horizontally.
7. Copy once get evaluated by Evaluator cannot be re-uploaded by the student.
8. Always Check correct Test No. of your subject while uploading answer sheet.
9. Handwriting should be clean

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1. Value of $(a^{1/8} + a^{-1/8})(a^{1/8} - a^{-1/8})(a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})$ is:

- (a) $a + \frac{1}{a}$
- (b) $a - \frac{1}{a}$
- (c) $a^2 + \frac{1}{a^2}$
- (d) $a^2 - \frac{1}{a^2}$

2. Six Friends are sitting in a circle and are facing the center of the circle. Deepa is between Prakash and Pankaj. Priya is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other. Who is sitting right to Prakash'?

- (a) Mukesh
- (b) Deepa
- (c) Pankaj
- (d) Lalit

3. If $2^x \times 3^y \times 5^z = 360$ Then what is the value of x, y, z?

- (a) 3, 2, 1
- (b) 1, 2, 3
- (c) 2, 3, 1
- (d) 1, 3, 2

4. Find the value of

$$[\log_{10}\sqrt{25} - \log_{10}(4)^2]^x$$

- (a) x
- (b) 10
- (c) 1
- (d) None

5. A man sells 6 radios and 4 televisions for Rs.18,460, If 14 radios and 2 televisions are sold for the same amount, what is the price of a televisions?

- (a) Rs.1,848
- (b) Rs.840
- (c) Rs.1,680
- (d) Rs.3,360

6. If one root of a equation is $2 + \sqrt{5}$, then the quadratic equation is :

- (a) $x^2 + 4x - 1 = 0$
- (b) $x^2 - 4x - 1 = 0$
- (c) $x^2 + 4x + 1 = 0$
- (d) $x^2 - 4x + 1 = 0$

7. The line joining (-1, 1) and (2, -2) and the line joining (1, 2) and (2, k) are perpendicular to each other for the following value of k:

- (a) 1
- (b) 0
- (c) -1
- (d) 3

8. The sides of an equilateral triangle are shortened by 12 units, 13 units and 14 units respectively and a right angled triangle is formed. The side of the equilateral triangle is :

- (a) 17 units
- (b) 16 units
- (c) 15 units
- (d) 20 Units

9. Graphs of In equations are drawn below :

$L_1: 5x + 3y = 30$ $L_2: x + y = 9$

$L_3: y = \frac{x}{3}$ $L_4: y = \frac{x}{2}$

The common region (shaded part) shown in the diagram refers to the inequalities :

(a) $5x + 3y \leq 30$

$x + y \leq 9$

$y \leq \frac{1}{2}x$

$y \leq x/2$

$x \geq 0, y \geq 0.$

(b) $5x + 3y \geq 30$

$x + y \leq 9$

$y \geq x/3$

$y \leq x/2$

$x \geq 0, y \geq 0.$

(c) $5x + 3y \geq 30$

$x + y \geq 9$

$y \leq x/3$

$y \geq x/2$

$x \geq 0, y \geq 0.$

(d) $5x + 3y > 30$

$x + y < 9$

$y \geq 9$

$y \leq x/2$

$x \geq 0, y \geq 0.$

10. The difference between compound and simple interest on a certain sum of money for 2 years at 4% p.a. is Rs. 1. The sum (in Rs.) is:

- (a) 625
- (b) 630
- (c) 640
- (d) .635

11. At what % rate of compound interest (C.i) will a sum of money become 16 times in four years, if interest is being calculated compounding annually:

- (a) $r = 100\%$
- (b) $r = 10\%$
- (c) $r = 200\%$
- (d) $r = 20\%$ •

12. Find the present value of an annuity of Rs. 1,000 payable at the end of each year for 10 years. If rate of interest is 6% compounding per annum (given $(1.06)^{-10} = 0.5584$):

- (a) Rs. 7,360
- (b) Rs. 8,360
- (c) Rs. 12,000
- (d) None of these.

13. If the simple interest on a sum of money at 12% p.a. for two years is Rs. 3,600. The compound interest on the same sum for two years at the-same rate is :

- (a) Rs. 3,816
- (b) Rs. 3,806
- (c) Rs. 3,861
- (d) Rs. 3,860 .

14. The future value of an annuity of Rs. 5,000 is made annually for 8 years at interest rate of 9% compounded annually [Given that $(1.09)^8 = 1.99256$] is

- (a) Rs. 55,142.22
- (b) Rs. 65,142.22
- (c) Rs. 65,532.22
- (d) Rs. 57,425.22

15. The effective annual rate of interest corresponding to nominal rate 6% p.a. payable half yearly is

- (a) 6.06%
- (b) 6.07%
- (c) 6.08%
- (d) 6.09%

16. The cost of Machinery is Rs. 1,25,000/- If its useful life is estimated to be 20 years and the rate of depreciation of its cost is 10% p.a., then the scrap value of the Machinery is [given that $(0.9)^{20} = 0.1215$]

- (a) Rs. 15,187
- (b) Rs. 15,400
- (c) Rs. 15,300
- (d) Rs. 15,250

17. Mr. X invests 'P' amount at Simple Interest rate 10% and Mr. Y invests 'Q' amount at Compound Interest rate 5% compounded annually. At the end of two years both get the same amount of interest, then the relation between two amounts P and Q is given by :

- (a) $P = \frac{41Q}{80}$
- (b) $P = \frac{41Q}{40}$
- (c) $P = \frac{41Q}{100}$
- (d) $P = \frac{41Q}{200}$

18. A box contains Rs.56 In the form of coins of one rupee, 50 paise and 25 paise. The number of 50 paise coin is double the number of 25 paise coins and four times the numbers of one rupee coins. The numbers of 50 paise coins in the box is:

(a) 64

(b) 32

(c) 16

(d) 14

19. The time by which a sum of money is 8 times of itself if it doubles itself in 15 years.

(a) 42 years

(b) 43 years

(c) 45 years

(d) 46 years

20. What is the rate of simple interest if a sum of money amounts to Rs. 2,784 in 4 years and Rs. 2,688 in 3 years ?

(a) 1% p.a.

(b) 4% p.a.

(c) 5% p.a.

(d) 8% p.a.

21. A sum amount to Rs. 1,331 at a principal of Rs. 1,000 at 10% compounded annually. Find the time.

(a) 3.31 years

(b) 4 years

(c) 3 years

(d) 2 years

22. One evening before sunset Aditya and Vaibhav were talking, to each other face to face. If Vaibhav's shadow was exactly to the right of Vaibhav. Which direction was Aditya facing?

(a) North

(b) South

(c) East

(d) West

23. Paul borrows Rs. 20,000 on condition to repay it with compound interest at 5% p.a. in annual instalment of Rs. 2,000 each..Find the number of years in which the debt would be paid off.

(a) 10 years

(b) 12 years

(c) 14 years

(d) 15 years

24. P_{10} is the index for time :

(a) 0 on 1

(b) 1 on 0

(c) 1 on 1

(d) 0 on 0

25. In how many years, a sum of Rs. 1,000 compounded annually @ 10%, will amount to Rs. 1,331 ?

(a) 6 years

(b) 5 years

(c) 4 years

(d) 3 years

26. The compound interest for a certain sum @ 5% p.a. for first year is Rs. 25. The S-I for the same money @ 5% p.a. for 2 years will be.

- (a) Rs. 40
- (b) Rs. 50**
- (c) Rs. 60
- (d) Rs. 70

27. A sinking fund is created for redeeming debentures worth Rs. 5 lacs at the end of 25 years. How much provision needs to be made out of profits each year provided sinking fund investments can earn interest at 4% p.a.?

- (a) Rs. 12,006**
- (b) Rs. 12,040
- (c) Rs. 12,039
- (d) Rs. 12,035

28. A code word is to consist of two English alphabets followed by two distinct numbers between 1 and 9. How many such code words are there?

- (a) 6,15,800
- (b) 46,800**
- (c) 7,19,500
- (d) 4,10,800

29. A boy has 3 library tickets and 8 books of his interest in the library of these 8, he does not want to borrow Mathematics part-II unless Mathematics part-I is also borrowed? In how many ways can he choose the three books to be borrowed?

- (a) 41**
- (b) 51
- (c) 61
- (d) 71

30. Given : $P(7, k) = 60 P(7, k - 3)$. Then :

- (a) $k = 9$
- (b) $k = 8$
- (c) $k = 5$**
- (d) $k = 0$

31. Among the examinees in an examination 30%, 35% and 45% failed in Statistics, in Mathematics and in at least one of the subjects respectively. An examinee is selected at random. Find the probability that he failed in Mathematics only :

- (a) 0.245**
- (b) 0.25
- (c) 0.254
- (d) 0.55

32. The number of ways in which n books can be arranged on a shelf so that two particular books are not together is :

- (a) $(n - 2) \times (n - 1)!$**
- (b) $(n - 2) \times (n + 1)!$
- (c) $(n - 1) \times (n + 1)!$
- (d) $(n - 2) \times (n + 2)!$

33. Find n such that $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ may be the geometric mean between a and b :

- (a) 1/2
- (b) 1
- (c) -1/2
- (d) 0

34. The sum of an A P, whose first term is - 4 and last term is 146 is 7171. Find the value of n.

- (a) 99
- (b) 100
- (c) 101
- (d) 102

35. For a moderately skewed distribution, which of the following relationship holds ?

- (a) Mean - Median = 3 (Median - Mode)
- (b) Median - Mode = 3 (Mean - Median)
- (c) Mean - Mode = 3 (Mean - Median)
- (d) Mean - Median = 3 (Mean - Mode)

36. If the first term of a G.P exceeds the second term by 2 and the sum to infinity is 50, the series is :

- (a) 10, 8, $\frac{32}{5}$,
- (b) 10, 8, $\frac{5}{2}$,
- (c) 10, $\frac{10}{3}$, $\frac{10}{9}$,
- (d) None

37. Find the sum of the series :

2 + 7 + 12 +297.

- (a) 8970
- (b) 8870
- (c) 7630
- (d) 9875

38. A certain ball when dropped to the ground rebounds to $\frac{4}{5}$ of the height from which it falls; it is dropped from a height of 100 metres find the total distance it travels before finally coming to rest :

- (a) 600m
- (b) 700m
- (c) 900m
- (d) 200m

39. Let $f : \mathbf{R} \rightarrow \mathbf{R}$ be such that $f(x) = 2^x$, then $f(x + y)$ equals :

- (a) $f(x) + f(y)$
- (b) $f(x) \cdot f(y)$
- (c) $f(x) \div f(y)$
- (d) None of these

40. A box contains 12 electric lamps of which 5 are defectives. A man selects three lamps at random. What is the expected number of defective lamps in his selection?

- (a) 1.25
- (b) 2.50
- (c) 1.05
- (d) 2.03

41. Out of total 150 students, 45 passed in Accounts, 30 in Economics and 50 in Maths, 30 in both Accounts and Maths. 32 in both Maths and Economics, 35 in both Accounts and Economics, 25 students passed in all the three subjects. Find the numbers who passed at least in any one of the subjects :

- (a) 63
- (b) 53
- (c) 73
- (d) None.

42. For the following data: the coefficient of rank correlation is :

| | | | | | |
|---------------------|---|---|---|---|---|
| Rank in Botany: | 1 | 2 | 3 | 4 | 5 |
| Rank in Chemistry : | 2 | 3 | 1 | 5 | 4 |

- (a) 0.93
- (b) 0.4
- (c) 0.6
- (d) None

43. If $f(x) = \frac{2+x}{2-x}$, then $f^{-1}(x)$:

- (a) $\frac{2(x-1)}{x+1}$
- (b) $\frac{2(x+1)}{x-1}$
- (c) $\frac{x+1}{x-1}$
- (d) $\frac{x-1}{x+1}$

44. If $y = 2x + \frac{4}{x}$, then $x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} - y$ yields

- (a) 3
- (b) 1
- (c) 0
- (d) 4

45. Take 200 and 150 respectively as the assumed mean for X and Y series of 11 value, then $dx = X - 200$, $dy = Y - 150$, $\sum dx = 13$, $\sum dx^2 = 2667$, $\sum dy = 42$, $\sum dy^2 = 6964$, $\sum dx dy = 3943$. The value of r is :

- (a) 0.77
- (b) 0.98
- (c) 0.92
- (d) 0.82

46. Evaluate $\int \frac{dx}{\sqrt{x^2+a^2}}$:

- (a) $\frac{1}{2} \log(x + \sqrt{x^2 + a^2}) + C$

- (b) $\log(x + \sqrt{x^2 + a^2}) + C$
 (c) $\log(x \sqrt{x^2 + a^2}) + C$
 (d) $\frac{1}{2}\log(x \sqrt{x^2 + a^2}) + C$

47. The Probability that there is at least one error in an account statement prepared by A is 0.3 and for B and C, they are 0.4 and 0.45 respectively. A, B and C prepared 20, 10 and 40 statements respectively. The expected number of correct statements in all is :

- (a) 32
 (b) 45
 (c) 42
 (d) 25

48. A researcher wishes to estimate the mean of a population by using sufficiently large sample. The probability is 0.95 that the sample mean will not differ from the true mean by more than 25% of the standard deviation. How large sample should be taken ?

- (a) 72
 (b) 62
 (c) 42
 (d) 32

49. The value of $\int_0^2 \frac{\sqrt{x}}{\sqrt{x} + \sqrt{x^2 - x}} dx$ is :

- (a) 0
 (b) 3
 (c) 2
 (d) 1

50. For a moderately skewed distribution, quartile deviation and the standard deviation are related by:

- (a) S. D. = $\frac{2}{3}$ Q.D
 (b) S. D. = $\frac{3}{4}$ Q.D
 (c) S. D. = $\frac{4}{3}$ Q.D
 (d) S. D. = $\frac{3}{2}$ Q.D

51. If $f(x) = x^k$ and $f^{-1}(1) = 10$, then the value of k is :

- (a) 10
 (b) -10
 (c) 1/10
 (d) None

52. How many such groups of 3 digits are there in the following number series in which middle digit is an even number while at least one of the two remaining digits is an odd number?

3 4 3 2 4 2 3 5 1 7 2 5 9 6 4 3 5 8 2 1 4 6 5 6 7 4

- (a) 6
 (b) 5
 (c) 4
 (d) More than 6

53. _____ & _____ are called ratio averages:

- (a) H. M. & G. M.
- (b) H. M. & A. M.
- (c) A. M. & G. M.
- (d) None

54. If in a certain code 'MANISH' is written as 'NZMRHS', then how will 'RANJITA' be written in the same code?

- (a) IZMQRGZ
- (b) IZMPRGZ
- (c) IZMQRHZ
- (d) IZMQRIZ

55. Three Identical dice are rolled. The probability that the same number will appear on each of them is :

- (a) $1/6$
- (b) $1/12$
- (c) $1/36$
- (d) 1

56. If 'THRASH' is coded as 'UGSZTG', then how will 'HEAD' be coded?

- (a) IECD
- (b) GDZC
- (c) IDBC
- (d) GDBC

57. A bag contains 8 red and 5 white bats. Two successive draws of 3 balls are made without replacement. The probability that the first draw will produce 3 white balls and second 3 red balls is:

- (a) $\frac{6}{255}$
- (b) $\frac{5}{548}$
- (c) $\frac{7}{429}$
- (d) $\frac{3}{233}$

58. In the following number series how many times have 2, 3 and 8 come together in such a way that 2 is in the middle and 3 and 8 are at extreme positions?

2 4 5 2 3 8 2 3 4 6 7 3 2 8 8 2 3 4 5 6 8 2 3 6 2 8 3 2 8

- (a) 3
- (b) 2
- (c) More than 4
- (d) 4

58. If two samples of sizes 30 and 20 have means as 55 and 60 and variances as 16 and 25 respectively, then what would be the S. D. of the combined sample size 50?

- (a) 5.33
- (b) 5.17
- (c) 5.06
- (d) 5

59. How many such even digits are there in the given series which are preceded by an odd number and followed by an even number?

- (a) 1
- (b) 2
- (c) 4
- (d) 3

60. Jai is going towards North up to 5km he turned 90° clockwise and moved up to 4km and he took right turn moved up to 2km. Find his distance from the start place.

- (a) 2km
- (b) 3km
- (c) 4km
- (d) 5km

61. The coefficient of correlation between X and Y is 0.6. U and V are two variables defined as $U = \frac{x-3}{2}$, $V = \frac{y-2}{3}$, then the coefficient of correlation between U and V is:

- (a) 0.6
- (b) 0.4
- (c) 0.8
- (d) 1

62. Aditya walked 20 m towards North. Then he turned right and walks 30 m. Then he turns right and walk 35 m. Then he turns left and walk 15 m. Finally he turns left and walk 15 m. In which direction and how many meter is he from the starting point?

- (a) 15 m West
- (b) 30 m East
- (c) 30 m West
- (d) 45 m East

63. The sum of the squares of deviations of a set of observations has the smallest value, when the deviations are taken from their :

- (a) A . M.
- (b) H. M.
- (c) G. M.
- (d) None

64. Raj started from point A, and walked towards west 4 m, then he turned towards South up to 4 m. In which direction he is from start point.

- (a) S-W
- (b) N-E
- (c) West
- (d) South

65. The coefficient of correlation r between x and y when :
 $\text{Cov}(x, y) = -16.5$, $\text{Var}(x) = 2.89$, $\text{Var}(y) = 100$ is :

- (a) -0.97
- (b) 0.97
- (c) 0.89
- (d) -0.89

66. Two random variables have the regression lines $3x + 2y = 26$ and $6x + y = 31$. The coefficient of correlation between x and y is :

- (a) -0.25
- (b) 0.5
- (c) -0.5
- (d) 0.25

67. Sona walks 10 km towards West, then turns right and walks 10 km. Again she take left turn and walk 10 km. She turned again towards left and moved up to 10 km. Finally she turns right and walk 10 km. How far she is now from start.

- (a) 10 m
- (b) 20 m
- (c) 30 m
- (d) 40 m

68. A sample of 35 observations has the mean 80 and S.D. as 4. A second sample of 65 observations from the same population has mean 70 and S.D. 3. The S.D. of the combined sample is :

- (a) 5.85
- (b) 5.58
- (c) 10.23
- (d) None of these

69. Siva, Satish, Amar and Praveen are playing cards. Amar is to the right of Satish who is to the right of Siva. Who is to the right of Amar?

- (a) Satish
- (b) Amar
- (c) Praveen
- (d) Siva

70. For some bivariate data, the following results were obtained for the two variables x and y :

$$x = 53.2, y = 27.9, b_{yx} = -1.5, b_{xy} = -0.2$$

The most probable value of y when $x = 60$ is :

- (a) 15.6
- (b) 13.4
- (c) 19.7
- (d) 17.7

71. A, R, P, X, S and Z are sitting in a row S and Z are in the Centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P ?

- (a) A
- (b) X
- (d) Z
- (c) S

72. A man travels at a speed of 20 km/hr and then returns at a speed of 30 km/ hr. His average speed of the whole journey is :

- (a) 25 km/ hr
- (b) 24.5 km/hr
- (c) 24 km/hr
- (d) None

73. If x and y are related by $x - y - 10 = 0$ and mode of x is known to be 23, then the mode of y is :

- (a) 20
- (b) 13
- (c) 3
- (d) 23

74. Six Friends are sitting in a circle and are facing the centre of the circle. Deepa is between Prakash and Pankaj. Priya is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other. Who is just right to Pankaj.

- (a) Deepa
- (b) Lalit
- (c) Prakash
- (d) Priya

75. The median of the data 13, 8, 11, 6, 15, 2, 18, is :

- (a) 5
- (b) 8
- (c) 11
- (d) 9.5

76. Looking at a photograph, a person said, "I have no brother or sister but that man's father is my father's son". At whose photograph was the person looking at? –

- (a) his son's
- (b) His nephews
- (c) His father's
- (d) His Own

77. ____ are used for measuring central tendency, dispersion and skewness :

- (a) Median
- (b) Deciles
- (c) Percentiles
- (d) Quartiles

78. B is the father of Q. B has only two children. Q is the brother of R. R is the daughter of P. A is the granddaughter of P and S is the father of A. How is S related to Q?

- (a) Son
- (b) Son-in-law
- (c) Brother
- (d) Brother-in-law

79. For a set of 100 observations, taking assumed mean as 4, the sum of the deviations is -11 cm, and the sum of the squares of these deviations is 257 cm². The coefficient of variation is :

- (a) 41.13%
- (b) 42.13%
- (c) 40.13%
- (d) None

80. Kusuma is the wife of Ravi, Govind and Prabhu are brother, Govind is the brother of Ravi. Prabhu is Kusuma's

- (a) Cousin
- (b) Brother
- (c) Brother-in-law
- (d) Uncle

81. The number of calls arriving at an internal switch board of an office is 96 per hour. Find the probability that there will be :

- (i) not more than 3 calls on the board,
 - (ii) at least three calls in a minute on the board. [Given : $e^{-1.6} = 0.2019$]
- (a) 0.08 and 0.92 respectively
 - (b) 0.19 and 0.92 respectively
 - (c) 0.92 and 0.13 respectively
 - (d) 0.92 & 0.08 respectively

82. D is K's brother. M is K's sister. T is R's father who is M's brother, F is K's mother. At least how many sons do T and F have ?

- (a) 2
- (b) 3
- (c) 4
- (d) Data inadequate

83. If the sum of squares of the rank difference in mathematics and physics marks of 10 students is 22, then the coefficient of rank correlation is:

- (a) 0.267
- (b) 0.867
- (c) 0.92
- (d) None

84. If the A. M. and for two numbers are 5 and 3.2 respectively then the G.M. will be :

- (a) 4.05
- (b) 16
- (c) 4
- (d) 4.10

85. If A is the brother of B, B is the sister of C, and C is the father of D, how D is related to A?

- (a) Brother /brother in law
- (b) Sister/sister in law
- (c) Nephew/Niece
- (d) Can't say

86. A student obtained the mean and standard deviation of 100 observations as 40 and 5.1 respectively. It was later discovered that he had wrongly copied down an observation as 50 instead of 40. The correct standard deviation is :

- (a) 5
- (b) 6
- (c) 3

(d) 7

87. A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?

- (a) Between B and D
- (b) Between B and C
- (c) Between E and D
- (d) Between C and E

88. Net monthly salary of an employee was Rs.3000 in 1980. The consumer price index number in 1985 is 250 with 1980 as base year. If he has to be rightly compensated, then the Dearness Allowance to be paid to the employee is:

- (a) Rs.4,200
- (b) Rs.4,500
- (c) Rs.4,900
- (d) Rs.7,500

89. If A and B are two events and $P(A) = \frac{3}{8}$, $P(B) = \frac{1}{2}$, $P(A \cap B) = \frac{1}{4}$, then the value of $P(A' \cup B')$ is :

- (a) $\frac{1}{4}$
- (b) $\frac{3}{4}$
- (c) $\frac{5}{8}$
- (d) $\frac{5}{4}$

90. In the data group Bowley's and Laspeyre's index number Is as follows. Bowley's Index number = 150, Laspeyre's index number = 180 then Paesche's index number is

- (a) 120
- (b) 30
- (c) 165
- (d) None of these

91. The permissible sampling error is required to determine sample size for:

- (a) Estimating a Proportion
- (b) Estimating a Mean
- (c) Both (a) & (b)
- (d) None of these

92. If the population S.D. is known to be 5 for a population containing 80 units, then the standard error of sample mean for a sample of size 25 without replacement is :

- (a) 0.83
- (b) 0.80
- (c) 0.03
- (d) 0.74

93. Which of the following result hold for a set of distinct positive observations?

- (a) $A . M. \geq G. M. \geq H. M.$

- (b) G. M. > A. M. > H. M.
- (c) G. M. ≥ A. M. ≥ H. M.
- (d) A. M. > G. M. > H. M.

94. Measures of dispersion are called averages of the order :

- (a) 1st
- (b) 2nd
- (c) 3rd
- (d) None

95. For a normal distribution with mean 150 and S.D. 45: find Q₁ and Q₃ :

- (a) 119.35 and 190.65 respectively
- (b) 119.65 and 180.35 respectively
- (c) 180.35 and 119.65 respectively
- (d) 123.45 and 183.65 respectively

96. If two variables x and y are related by $2x + 3y - 7 = 0$ and the mean and mean deviation about mean of x are 1 and 0.3 respectively, then the co-efficient of mean deviation of y about mean is :

- (a) -5
- (b) 4
- (c) 12
- (d) 50

97. The probability density function of a normal variable x is given by :

- (a) $f(x) = \frac{1}{\sigma\sqrt{2\pi}} \cdot e^{-\frac{(x-\mu)^2}{2\sigma^2}}$ for $0 < x < \infty$
- (b) $f(x) = \frac{1}{\sqrt{2\pi}\sigma} \cdot e^{-\frac{(x-\mu)^2}{2\sigma^2}}$ for $-\infty < x < \infty$
- (c) $f(x) = \frac{1}{\sigma\sqrt{2\pi}} \cdot e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$ for $-\infty < x < \infty$
- (d) None of these

98. The Interval $(\mu - 3\delta, \mu + 3\delta)$ covers:

- (a) 95% area of normal distribution
- (b) 96% area of normal distribution
- (c) 99% area of normal distribution
- (d) All but 0.27% area of a normal distribution

99. The overall percentage of failure in a certain examination is 0.30. What is the probability that out of a group of 6 candidates at least 4 passed the examination?

- (a) 0.74
- (b) 0.71
- (c) 0.58
- (d) 0.67

100. The coefficient of rank correlation of marks obtained by 10 students, In English and Economics was found to be 0.5. It was later discovered that the difference in ranks In the two subjects obtained by one student was wrongly taken as 3 instead of 7. The correct coefficient of rank correlation is :

- (a) 0.32

(b) 0.26

(c) 0.49

(d) 0.48