PUNE VIDYARTHI GRIHA'S

COLLEGE OF SCIENCE AND TECHNOLOGY

Affiliated to University of Mumbai

Question Bank

Class: FYBCOM **Semester: II**

Subject: Mathematics and Statistical Techniques

1. If y=f(x) then x is known as _____ variable
    a) Real
    b) Dependent
    c) Independent
    d) Same
2. If f(x) =5x-3 then f(2) is _____
    a) 2
    b) 7
    c) 8
    d) 1
3. Functions are divided into _____ type
    a) 1
    b) 2
    c) 3
    d) 4
4. Derivative of x^2 is _____
    a) X
    b) 2x
    c) 1
    d) -1
5. The cost of production per unit is called _____
    a) Cost
    b) Average cost
    c) Revenue
    d) Average revenue
6. Y=7 is a _____ function
    a) Constant
    b) Linear
    c) Exponential
    d) Logarithmic
7. A^x is _____ function
    a) Constant
    b) Linear

c) Exponential
d) Power

8. e^x is _____ function
    e) Constant
    f) Linear
    g) Exponential
    h) Power
9. Log x is a _____ function
    e) Constant
    f) Linear
    g) Exponential
    h) Logarithmic
10. Derivative of e^x is _____
    a) E
    b) e^x
    c) 1
    d) 0
11. Price is a ____ function of demand
    a) Increasing
    b) Decreasing
    c) Same
    d) Unequal
12. If price increases supply _____
    a) Increase
    b) Decrease
    c) Same
    d) Unequal
13. R-C=_____
    a) Profit
    b) Loss
    c) Debit
    d) No prfit no loss
14. If D=S then it is known as _____ point
    a) Equilibrium
    b) Critical
    c) Positive
    d) Negative
15. If R=C then it is known as _____ point
    a) Equilibrium
    b) Break even
    c) Positive
    d) Negative
16. d/dx(8)=_____
    a) 8
    b) 0
    c) 1
    d) X

17. d/dx(logx)=_____
    a) 1
    b) 0
    c) X
    d) 1/x
18. If f' >0 then function is _____ at x=a
a) Increasing
b) Decreasing
c) Same
d) Unequal

19. If f' <0 then function is _____ at x=a
a) Increasing
b) Decreasing
c) Same
d) Unequal
20. If f"<0 then f has _____ at x=a
a) Increasing
b) Decreasing
c) maxima
d) minima
21. If f">0 then f has _____ at x=a
a) Increasing
b) Decreasing
c) maxima
d) minima

UNIT 2

22. The simple interest on Rs 20000 for 3.5 years at 6% rate of interest per annum is Rs _____
    a) 4200
    b) 1200
    c) 500
    d) 400
23. Interest is calculated in _____ ways
    a) 1
    b) 2
    c) 3
    d) 4
24. The series of payments made at successive intervals of time is called _____
    a) Annuity
    b) Simple interest
    c) Compound interest
    d) Depreciation
25. The present value at 5% rate of interest of Rs 7408.8 payable 3 years from now is _____
    a) 5000
    b) 6400
    c) 1200
    d) 3600
26. EMI is calculated in _____ ways
    a) 1
    b) 2
    c) 3
    d) 4
27. At what rate percent on simple interest will Rs.750 amount to Rs.900 in 5 years?
    a) 5
    b) 4
    c) 3
    d) 2
28. Pnr/100=_____
    a) Simple interest

b) Compound interest
c) Present value
d) Future value

29. Amount is also known as _____ value
    a) Accumulated
    b) Principal
    c) Real
    d) Future
30. The compound interest on Rs 10000 at 5 % pa for 3 yrs is _____
    a) 1500
    b) 1600
    c) 1400
    d) None of these
31. The simple interest on Rs 15000 for 8 months at 10% p.a is _____
    a) Rs 1000
    b) Rs 1500
    c) Rs 1050
    d) None of the above
32. The future value of an amount is always _____ the present value
    a) Greater than
    b) Less than
    c) Equal to
    d) None of the above
33. In EMI calculation, the rate of interest is compounded _____
    a) Quaterly
    b) Yearly
    c) Monthly
    d) Six monthly
34. If the payments are made at the beginning of each period the annuity is called _____
    a) Annuity due
    b) Immediate annuity
    c) Uniform annuity
    d) Simple interest
35. If the payments are made at the end of each period the annuity is called _____
    a) Annuity due
    b) Immediate annuity
    c) Uniform annuity
    d) Simple interest
36. If the payments are made equally over successive periods the annuity is called _____

a) Annuity due
b) Immediate annuity
c) Uniform annuity
d) Simple interest

37. _____ is given by $A=P(1-i)^n$

a) Simple interest
b) Compound interest

c) Present value
d) Depriciation

38. _____ is given by $A=P(1+i)^n$

a) Future value
b) Compound interest
c) Present value
d) Depriciation

39. _____ is given by $P=A/(1+i)^n$

a) Simple interest
b) Compound interest
c) Present value
d) Depriciation

40. The difference between SI and CI after one year at r% pa is _____

a) 100
b) 0
c) 1
d) 10

UN IT 3

41. The value of co relation coefficient lies between ____
    a) -1 and 1
    b) 0 and1
    c) 1 and 2
    d) 0 and 2
42. There are _____ methods to find co relation
    a) 1
    b) 2
    c) 3
    d) 4
43. Co relation is denoted by _____
    a) r
    b) s
    c) t
    d) h
44. If we need to fit a straight line, we get _____ normal equations
    a) 1
    b) 2
    c) 3
    d) 4
45. B_{yx} means_____
    a) Regression coefficient of y on x
    b) Regression coefficient of x on y
    c) Correlation coefficient of x on y
    d) Correlation coefficient of y on x
46. B_{xy} means_____
    e) Regression coefficient of y on x
    f) Regression coefficient of x on y
    g) Correlation coefficient of x on y
    h) Correlation coefficient of y on x

47. $B_{yx}XB_{xy}$=_____
    a) R
    b) S
    c) T
    d) O
48. A process by which we estimate the value of dependent variable on the basis of one or more independent variables is called_____
    (a) Correlation
    (b) Regression
    c) Residual
    d) Slope
49. The regression equation always passes through:
    (a) (X, Y)
    (b) (a, b)
    (c) (x bar , y bar)
    d) (1,0)
50. The graph showing the paired points of (Xi , Yi) is called:
    (a) Scatter diagram
    b) Histogram
    (c) Historgram
    (d) Pie diagram
51. When bXY is positive, then byx will be:
    (a) Negative
    (b) Positive
    (c) Zero
    (d) One

52. A measure of the strength of the linear relationship that exists between two variables is called:
    (a) Slope
    (b) Intercept
    (c) Correlation coefficient
    d) Regression equation
53. Cov(x,y) means _____
    a) Mean
    b) Co mean
    c) Co variance
    d) Co mode
54. If b=0.86, a=4.5 then equation become
    a) 4.7+0.99x
    b) 4.5+0.77x
    c) 4.5+0.86x
    d) 45+86x
55. Least square method calculates the best-fitting line for the observed data by minimizing the sum of the squares of the _____ deviations
    a) Vertical
    b) Horizontal
    c) small

d) large

56. In a straight line equation Y = mx+c; m is the:
    a) Y-intercept
    b) Slope
    c) X-intercept
    d) Trend
57. The correlation coefficient is used to determine:
    a. A specific value of the y-variable given a specific value of the x-variable
    b. A specific value of the x-variable given a specific value of the y-variable
    c. The strength of the relationship between the x and y variables
    d. None of these
58. In simple linear regression, the numbers of unknown constants are:
    a)One
    b)Two
    c)Three
    d)Four
59. Co relation was given by
    a) Karl pearson
    b) Spearman
    c) Euler
    d) both a and b
60. If r>0 then the co relation is _____
    a) Positive
    b) Negative
    c) Real
    d) Equal
61. If r<0 then the co relation is _____
    e) Positive
    f) Negative
    g) Real
    h) Equal

UNIT 4

62. A _____ is a sequence of values of a phenomenon arranged in order of their occurrence.
    a) Time series
    b) Index numbers
    c) Chain Base Index number
    d) none of these
63. The method used to derive regression constants of a regression equation is known as _____
    a) Product moment
    b) Least square
    c) Moving average
    d) none of these

64. There are _____ components in time series.
    a) 3
    b) 4
    c) 5
    d) None of these
65. Index number _____ carries unit of measurement
    a) Sometimes
    b) Always
    c) Never
    d) Rarely
66. The index number for base period is _____ taken as 100
    a) Sometimes
    b) Always
    c) Never
    d) Rarely
67. There are _____ types of principal index numbers
    a) 1
    b) 2
    c) 3
    d) 4
68. An orderly set of data arranged in accordance with their time of occurrence is called:
    (a) Arithmetic series
    (b) Harmonic series

(c) Geometric series
(d) Time series

69. A time series consists of:
(a) Short-term variations
b) Long-term variations
(c) Irregular variations
(d) All of the above

70. The graph of time series is called:
(a) Histogram
(b) Straight line
(c) plane
(d) Ogive

71. Secular trend can be measured by:
(a) Two methods
(b) Three methods
(c) Four methods
d) Five methods

72. Increase in the number of patients in the hospital due to heat stroke is:
(a) Secular trend
(b) Irregular variation
(c) Seasonal variation
(d) Cyclical variation

73. Damages due to floods, droughts, strikes fires and political disturbances are:
(a) Trend (
b) Seasonal
(c) Cyclical
(d) Irregular

74. An index number is called a simple index when it is computed from:
(a) Single variable
(b) Bi-variable
(c) Multiple variables
(d) None of them

75. Index numbers are expressed in:
(a) Ratios
(b) Squares
(c) Percentages
(d) Combinations

76. Index for base period is always taken as:
(a) 100
(b) One
(c) 200
(d) Zero

77. When the prices of rice are to be compared, we compute:
(a) Volume index
(b) Value index
(c) Price index
(d) Aggregative index

78. Consumer price index numbers are obtained by:
(a) Laspeyre's formula

(b) Fisher ideal formula
(c) Marshall Edgeworth formula
(d) Paasche's formula

79. Laspeyre's index = 110, Paasche's index = 108, then Fisher's Ideal index is equal to:
(a) 110
(b) 108
(c) 100
(d) 109

80. An index number constructed to measure the relative change in the price of an item or a group of items is called:
a) Quantity index number
(b) Price index number
(c) Volume index number
(d) Difficult to tell

81. When relative change is measured for a fixed period, it is called:
(a) Chain base method
b) Fixed base method
(c) Simple aggregative method
d) Cost of living Index method

82. Index number having downward bias is:
a) Laspeyre's index
b) Paasche’s index
(c) Fisher's ideal index
(d) Marshall Edgeworth index

83. Index number having upward bias is:
a) Laspeyre's index
(b) Paasche's index
(c) Fisher's ideal index
(d) Marshal Edgworth index

UNIT 5

84. The sum of all probabilities of given observation is always _____
    a) 1
    b) 0
    c) 2
    d) -1
85. The number of observation and probability will give us the _____
    a) Mean
    b) Median
    c) Variance
    d) Standard deviation
86. _____ is parameter of poisson distribution
    a) R
    b) S
    c) T
    d) M
87. The n trials are _____ of each other
    a) Dependent
    b) Independent
    c) Same
    d) Different
88. The normal curve is _____ shaped curve
    a) Bell
    b) Circle
    c) Square
    d) Rectangle

A table with all possible value of a random variable and its corresponding probabilities is called _____

a) Probability Mass Function
b) Probability Density Function
c) Cumulative distribution function
d) Probability Distribution

89. A variable that can assume any value between two given points is called _____
    a) Continuous random variable
    b) Discrete random variable
    c) Irregular random variable
    d) Uncertain random variable
90. The expected value of a discrete random variable ‘x’ is given by _____
    a) P(x)
    b) $\sum$ P(x)
    c) $\sum$ x P(x)
    d) 1
91. Which of these distributions has an appearance of bell-shaped or unimodal curve?
    a) Lognormal distributions
    b) Normal distribution
    c) Exponential distribution
    d) Cumulative exponential distributions
92. In a Binomial Distribution, if ‘n’ is the number of trials and ‘p’ is the probability of success, then the mean value is given by _____
    a) np
    b) n
    c) p
    d) np(1-p)
93. If ‘p’, ‘q’ and ‘n’ are probability pf success, failure and number of trials respectively in a Binomial Distribution, what is its Standard Deviation?
    a) $\sqrt{np}$
    b) $\sqrt{pq}$
    c) $(np)^2$
    d) $\sqrt{npq}$
94. It is suitable to use Binomial Distribution only for _____
    a) Large values of ‘n’
    b) Fractional values of ‘n’
    c) Small values of ‘n’
    d) Any value of ‘n’
95. Binomial Distribution is a _____
    a) Continuous distribution
    b) Discrete distribution
    c) Irregular distribution
    d) Not a Probability distribution
96. If ‘X’ is a random variable, taking values ‘x’, probability of success and failure being ‘p’ and ‘q’ respectively and ‘n’ trials being conducted, then what is the probability that ‘X’ takes values ‘x’? Use Binomial Distribution
    a) $P(X = x) = {}^{n}C_x\ p^x\ q^x$
    b) $P(X = x) = {}^{n}C_x\ p^x\ q^{(n-x)}$
    c) $P(X = x) = {}^{x}C_n\ q^x\ p^{(n-x)}$
    d) $P(x = x) = {}^{x}C_n\ p^n\ q^x$

97. Normal Distribution is applied for _____
    a) Continuous Random Distribution
    b) Discrete Random Variable
    c) Irregular Random Variable
    d) Uncertain Random Variable
98. Normal Distribution is symmetric is about _____
    a) Variance
    b) Mean
    c) Standard deviation
    d) Covariance
99. The area under a standard normal curve is?
    a) 0
    b) 1
    c) ∞
    d) not defined
100. For a standard normal variate, the value of Standard Deviation is _____
    a) 0
    b) 1
    c) ∞
    d) not defined
101. The shape of the normal curve depends on its _____
    a) Mean deviation
    b) Standard deviation
    c) Quartile deviation
    d) Correlation
102. In Standard normal distribution, the value of mode is _____
    a) 2
    b) 1
    c) 0
    d) Not fixed
103. In Standard normal distribution, the value of median is _____
    a) 1
    b) 0
    c) 2
    d) Not fixed
104. Normal Distribution is also known as _____
    a) Cauchy’s Distribution
    b) Laplacian Distribution
    c) Gaussian Distribution
    d) Lagrangian Distribution