COMBINED TECHNICAL SERVICES EXAMINATION

(INTERVIEW POST)

COMPUTER BASED TEST

DATE OF EXAM: 21.07.2025 AN

PAPER – II – STATISTICS AND ECONOMICS

(PG DEGREE STANDARD) (CODE: 564)

1. In statistical testing of hypothesis, what happens to the region of rejection when the level of significance 'α' is reduced?

(A) The rejection region is increased in size

(B) The rejection region is decreased in size

(C) The rejection region is unaltered

(D) Depends on the form of alternative hypothesis

(E) Answer not known

2. Which of the following statement best describes a uniformly most powerful test?

(A) A test with the highest probability of making type I error

(B) A test with the highest power against a specific alternative hypothesis

(C) A test with the highest power against all alternative hypothesis of a given size

(D) A test with the lowest probability of making type II error

(E) Answer not known

3. Let P be the probability that a coin will fall head in a single toss. In order to test the hypothesis $H_0 : p = \frac{1}{2}$, the coin is tossed 6 times and the hypothesis H_0 is rejected if more than 4 heads are obtained. Find the probability of the error of first kind

(A) $\frac{6}{32}$

(B) $\frac{6}{64}$

(C) $\frac{7}{64}$

(D) $\frac{1}{64}$

(E) Answer not known

4. Power of a test is related to

(A) Type I error
(B) Type II error
(C) Both Type I error and Type II error
(D) Neither Type I error nor Type II error
(E) Answer not known

5. Match the following :

(a) Composite hypothesis	1. Type II error
(b) Critical region	2. $P(x \in W / H_1) \geq P(x \in w_1 / H_1)$
(c) MP test	3. $\mu = \mu_0, \sigma^2 > \sigma_0^2$
(d) H_0 is false we accept H_0	4. Type-I-error

	(a)	(b)	(c)	(d)
(A)	4	3	1	2
(B)	3	4	2	1
(C)	2	3	4	1
(D)	3	1	4	2

(E) Answer not known

6. Smaller P-values indicate more evidence in support of

(A) Null hypothesis
(B) Alternative hypothesis
(C) Quality of the researcher
(D) Further testing
(E) Answer not known

7. If n_1 and n_2 are sufficiently large in Mann-Whitney U test, the variable U is distributed with variance is equal to

(A) $\frac{n_1 n_2 (n_1 + n_2)}{12}$

(B) $\frac{n_1 n_2 (n_1 - n_2)}{12}$

(C) $\frac{n_1 n_2 (n_1 + n_2 - 1)}{12}$

(D) $\frac{n_1 n_2 (n_1 + n_2 + 1)}{12}$

(E) Answer not known

8. For Wilcoxon signed rank test

Statement A : $T^+ = \sum_{i=1}^{n} Z_i \, r(|D_i|)$

Statement B : $T^- = \sum_{i=1}^{n} (1 + Z_i) r(|D_i|)$

(A) A true, B false

(B) A false, B true

(C) Both A and B are true

(D) Both A and B are false

(E) Answer not known

9. Match the following :

List I	List II
(a) Test for randomness	1. Mann-Whitney U test
(b) Samples drawn from same population	2. Kruskal Wallis test
(c) Alternative of t-test	3. Run test
(d) Analogue of one-way ANOVA	4. Median test

	(a)	(b)	(c)	(d)
(A)	3	1	4	2
(B)	3	4	1	2
(C)	4	1	2	3
(D)	4	2	1	3

(E) Answer not known

10. Kruskal-Wallis analysis of data is meant for

(A) t-test
(B) one-way classification
(C) two way classification
(D) z-test
(E) Answer not known

11. The non-parametric test is widely used as an alternate to the t-test when we do not make the t-test assumptions about the parent population is

(A) Median test
(B) Kolmogorov Smirnov test
(C) Mann-Whitney Wilcoxon U-test
(D) Sign test
(E) Answer not known

12. The two sample Mann-Whitney test is extended to K independent random sample $(K > 2)$, then the test is called

(A) Kruskal-Wallis test
(B) Kolmogorov-Smirnov test
(C) Run test
(D) Wilcoxon Signed rank test
(E) Answer not known

13. Let $x_1, x_2 ... x_n$ be a random sample from a Bernoulli population $p^x (1-p)^{n-x}$, then the sufficient statistic for 'p' is

(A) Σx_i
(B) πx_i
(C) $\min.-(x_1 x_2 .... x_n)$
(D) $\max.-(x_1 x_2 .... x_n)$
(E) Answer not known

14. Match the following :

(a)	Gramer-Rao Inequality	1.	Minimum Variance Bound Estimators (MVBE)
(b)	Rao-Blackwell theorem	2.	Sufficient Statistic
(c)	Lehman-Scheffe theorem	3.	Lower-Bound
(d)	Factorization theorem	4.	Uniformly Minimum Variance Unbiased Estimator (UMVUE)

	(a)	(b)	(c)	(d)
(A)	4	3	1	2
(B)	4	1	2	3
(C)	3	4	2	1
(D)	3	1	4	2

(E) Answer not known

15. Given an unbiased estimator T of a parameter θ and a sufficient statistics S, what does the Rao-Blackwell theorem state about condition expectation E(T/S)?

(A) $E(T/S)$ is always biased estimator of θ

(B) $E(T/S)$ is always less efficient estimator of θ than T

(C) $E(T/S)$ is an unbiased estimator of θ and may have a smaller variance than T

(D) $E(T/S)$ is a sufficient statistic for θ

(E) Answer not known

16. Choose the True/False statement :

Statement (a) : If T is an unbiased estimator for θ, then T^2 is also an unbiased estimator for θ^2 .

Statement (b) : If $x_1, x_2 ... x_n$ is a random sample from a Normal population $N(\mu, 1)$ then t in an unbiased estimator of $(\mu^2 + 1)$ where $t = \frac{1}{n}\sum x_i^2$.

(A) (a) true (b) false

(B) (a) and (b) true

(C) (a) false (b) true

(D) (a) and (b) false

(E) Answer not known

17. Match the following :

(a)	Consistency	1.	$E(T_n)=\theta,\ V(T)\le V(T')\forall\,\theta\varepsilon(H)$
(b)	Unbiasedness	2.	$L=g_\theta(t(x)\cdot h(x))$
(c)	Sufficiency	3.	$E(T_n)=\theta\cdot\forall\,\theta\varepsilon(H)$
(d)	Efficiency	4.	$E(T_n)\to\theta\cdot 2V(T_n)\to 0$ as $n\to\infty$

	(a)	(b)	(c)	(d)
(A)	4	3	2	1
(B)	3	4	2	1
(C)	2	1	3	4
(D)	4	2	3	1

(E) Answer not known

18. An estimator T is said to be an asymptotically unbiased estimator of $\gamma(\theta)$ for every $\theta\in\Theta$, if it satisfies

(A) $\lim_{n\to\infty} E[T-\gamma(\theta)]=0$ (B) $\lim_{n\to 0} E[T-\gamma(\theta)]=0$

(C) $\lim_{n\to 0} E[T+\gamma(\theta)]=0$ (D) $\lim_{n\to\infty} E[T+\gamma(\theta)]=0$

(E) Answer not known

19. Let X and Y be random variables such that $E(X)=\mu$ and $V(Y)=\sigma_Y^2>0$ and let $E[Y/X=x]=\phi(x)$, then

Statement [A] : $E[\phi(X)]=\mu$

Statement [B] : $V[\phi(X)]>V(Y)$

(A) [A] true, [B] false (B) [A] false, [B] true

(C) Both [A] and [B] are true (D) Both [A] and [B] are false

(E) Answer not known

20. Identify the statements which are not regularity conditions for C.R. Rao Inequality

(i) Support of the density $f(x;\theta)$ does not depend on θ

(ii) First and second order derivatives of $f(x;\theta)$ exits

(iii) Expectation of log $f(x;\theta)$ exists

(iv) Unbiased estimator of θ does not exists

(A) (i) and (ii)
(B) (i) and (iv)
(C) (ii) and (iii)
(D) (ii) and (iv)
(E) Answer not known

21. In Logistic Regression model, the value of the by likelihood function for the fitted model can never exceed the value of the log-likelihood function of the saturated model

(i) The fitted model contains fewer parameters

(ii) The fitted model contains more parameters

(iii) The fitted model may contains any number of parameters

(A) (i) only
(B) (i) and (ii) only
(C) (ii) and (iii) only
(D) (i) and (iii) only
(E) Answer not known

22. The generalised linear models consider

(A) Linear regression models
(B) Non-Linear regression models
(C) Both Linear and non-linear models
(D) None of these
(E) Answer not known

23. Which is most elegant visualization library in python?

(A) Seaborn
(B) Numpy
(C) Pandas
(D) Matplotlib
(E) Answer not known

24. Choose the correct option :

(a) expr is the element that needs to be added to the list.

(b) condition is an expression that must be false for the element to be added.

(A) (a) and (b) are correct
(B) (a) and (b) are incorrect
(C) (a) is correct; (b) is incorrect
(D) (a) is incorrect; (b) is correct
(E) Answer not known

25. Choose the correct option:

(i) Member operators are used to check whether the value is a part of another sequence value

(ii) The member operator can be used efficiently when applied on data types like string, lists

(A) (i) and (ii) are correct
(B) (i) and (ii) are incorrect
(C) (i) is correct; (ii) is incorrect
(D) (i) is incorrect; (ii) is correct
(E) Answer not known

26. The other name for comparison operator is in Python

(A) Multiple operator
(B) Additional operator
(C) Relational operator
(D) Logical operator
(E) Answer not known

27. K-Nearest Neighbors (KNN) is classified as what type of Machine Learning Algorithm?

(A) Instance-based learning
(B) Parametric learning
(C) Non-parametric learning
(D) Model-based learning
(E) Answer not known

28. Two statements [A] and [B] are given. Identify correct/incorrect statement :

Properties of the least – square fit

Statement [A] : The sum of the residuals in any regression model that contains an intercept β_0 is not equal to zero

$$\sum(y_i - \hat{y}_i) = \sum_{i=1}^{n} e_i \neq 0.$$

Statement [B] : The least squares regression line always passes through the centroid of the data.

(A) [A] true, [B] true
(B) [A] false, [B] true
(C) [A] and [B] are false
(D) [A] true [B] false
(E) Answer not known

29. Statement (I) : Multicollinearity is the only cause of large variances and covariances of regression coefficients.

Statement (II) : Variance Inflation Factors (VIFs) of regressors exceeds 5 or 10, it is an indication of multicollinearity.

Identify the correct statements

(A) Both (I) and (II) are correct

(B) (I) is correct (II) is incorrect

(C) (I) is incorrect (II) is correct

(D) Both (I) and [II] are incorrect

(E) Answer not known

30. Deriving the bias caused by omitting an important variable is an example of

(A) regression analysis

(B) factor analysis

(C) correlation analysis

(D) mis-specification analysis

(E) Answer not known

31. Standard error of the estimate for a multiple linear regression model is

(A) $S_{yx} = \sqrt{\frac{SSE}{n-k-1}}$

(B) $S_{yx} = \sqrt{\frac{SSE}{n-k}}$

(C) $S_{yx} = \sqrt{\frac{SSE}{n-1}}$

(D) $S_{yx} = \sqrt{\frac{SSE}{n}}$

(E) Answer not known

32. For a positive coefficient of determination, the regression equation is

(A) having a negative slope
(B) having a positive slope
(C) either a positive or negative slope
(D) having a positive intercept
(E) Answer not known

33. Mention the type of correlation R which is a measure of association between a scalar variable and a vector variable in a sample

(A) Simple correlation
(B) Partial correlation
(C) Bi-serial correlation
(D) Multiple correlation
(E) Answer not known

34. The process of variation in the dependent variable is explained by a change in the independent variable is known to be

(A) Coefficient of correlation
(B) Coefficient of Rank correlation
(C) Regression
(D) Coefficient of Determination
(E) Answer not known

35. Age of applicants for life insurance and the premium of insurance is _____ correlation.

(A) Positive
(B) Negative
(C) No
(D) Casual relation
(E) Answer not known

36. "One nation, one market and one tax" is a philosophy of

(A) GST
(B) VAT
(C) Excise
(D) Custom
(E) Answer not known

37. The currency withdrawal from banks is called as

(A) Currency drain
(B) Money multiplier
(C) High powered money
(D) Reserve money
(E) Answer not known

38. FRBM Act was enacted in the year

(A) 2001
(B) 2003
(C) 2007
(D) 2011
(E) Answer not known

39. _____ fund is collected through other agencies such as small savings and provident fund.

(A) Private Account
(B) Public Account
(C) Contingency
(D) Consolidated
(E) Answer not known

40. Under which of the following condition is the crowding-in effect of the government spending more likely to occur?

(A) when the interest rates are high and resources are fully utilised

(B) when there is significant inflation and full employment

(C) when there are unutilised resources in the economy

(D) when the monetary policy is restrictive and capital-markets are tight

(E) Answer not known

41. Which budgeting is an important method of overcoming depression?

(A) Deficit budgeting

(B) Surplus budgeting

(C) Balanced budgeting

(D) Monetary budgeting

(E) Answer not known

42. Tax multiplier is equal to

(A) $\frac{MPC}{1-MPC}$

(B) $\frac{MPC}{1+MPC}$

(C) $\frac{1}{MPC-1}$

(D) $\frac{1}{MPC+1}$

(E) Answer not known

43. The Keynesian theory of fiscal policy assumes the operation of

(A) Free enterprise economy

(B) Market enterprise economy

(C) Balance growth of economy

(D) Unbalanced growth of economy

(E) Answer not known

44. "The best system of Taxation from economic point of view is that which has the best or the least bad economic efforts"

(A) Dalton
(B) Adam Smith
(C) Adolph Wagner
(D) J.S. Mill
(E) Answer not known

45. "Every Tax ought to be levied of the time or in the manner in which it is most likely to be convenient for the contributor the pay it"

(A) Adam Smith
(B) Musgrave
(C) Dalton
(D) J.S. Mill
(E) Answer not known

46. All commercial banks maintenance of adequate liquid asset of their total demand and time deposit liabilities is called

(A) Statutory Liquidity Requirements (SLR)
(B) CRR
(C) Open Market Operation
(D) Repo ratio
(E) Answer not known

47. ———— selective method of controlling and regulating the purpose for which credit is granted by the commercial banks.

(A) Credit control
(B) Quantitative control
(C) Rationing of credit
(D) Open market operation
(E) Answer not known

48. The increasing the cash reserve ratio

(A) Reduces liquidity with the public
(B) Reduces liquidity with the banks
(C) Reduces savings in the bank
(D) Reduces output in the industry
(E) Answer not known

49. The money that is supplied by Reserve Bank of India (RBI) is known as

(A) Ordinary money
(B) Black money
(C) High powered money
(D) Credit money
(E) Answer not known

50. ———— is not like coins or currency notes that can be passed or from hand to hand for a transfer of purchasing power

(A) Fiat money
(B) Fiduciary money
(C) Deposit money
(D) Legal tender
(E) Answer not known

51. ———— is a social choice paradox illustrating the flaws of ranked voting system

(A) Arrow's Impossibility Theorem
(B) Keynes Possibility Theorem
(C) Cobb Web theorem
(D) Pigovian Theorem
(E) Answer not known

52. The LM curve slopes upward to the right because of

(A) Lower levels of income, demand curve for money is lower and occasionally the money market equilibrium

(B) Lower levels of income, demand curve for money is higher and consequently the money market equilibrium

(C) Higher levels of income, demand curve for money is lower and occasionally the money market equilibrium

(D) Higher levels of income, demand curve for money is higher and consequently the money market equilibrium

(E) Answer not known

53. The LM curve show the relationship between the interest rate and the equilibrium level of nation income with money market in equilibrium where : _____

(A) IS = LM

(B) I = S

(C) S = I

(D) Ms = Md

(E) Answer not known

54. A shift in LM curve to the right is caused by

(A) increase in money supply

(B) decrease in money supply

(C) increase in demand for money

(D) decrease in demand for money

(E) Answer not known

55. Many other policies can often be applied some of which would improve welfare. If any such policy raises welfare to a lesser degree than the first best policy, then it would be called as

(A) Optimum best policy
(B) Second best policy
(C) Minimum best policy
(D) Long run best policy
(E) Answer not known

56. Any state or any situation regarding resources allocation maximises social welfare is called as

(A) Partial equilibrium
(B) Efficiency in economics
(C) General equilibrium
(D) Marginal rate of transformation
(E) Answer not known

57. Principle of double-entry book keeping for the balance of payments account of a country, credit and debit items are shown

(A) Downward to up
(B) Vertically
(C) Up to Downward
(D) Horizontally
(E) Answer not known

58. Sticky nominal wages, sticky nominal prices, sticky real wages and co-ordination failures are discussed in the

(A) Seemed best solution
(B) Arrow impossibility theorem
(C) New Keynesian Economics
(D) Real business cycle
(E) Answer not known

59. Which of the following is not related to business cycle?

(A) Periodical
(B) Synchronic
(C) Fluctuations occur only in level of production
(D) Durable consumer goods are affected
(E) Answer not known

60. The second phase of a Business Cycle is

(A) Prosperity
(B) Recession
(C) Depression
(D) Recovery
(E) Answer not known

61. The Real Business Cycle Theory is based on

(A) There is single commodity in the economy
(B) There is multiple commodities in the economy
(C) There is dual commodity in the economy
(D) There is climatic conditions in the economy
(E) Answer not known

62. The equilibrium growth rate is defined as the rate at which

(A) Potential growth rate is equal to nominal growth rate
(B) Nominal growth is equal to effective rate
(C) Realised growth rate is equal to natural growth rate
(D) Natural growth is equal to effective rate
(E) Answer not known

63. In the Mankiw sticky prices model, cost of adjusting prices are called the

(A) Menu cost
(B) Asymmetric Information
(C) Implicit Contract Theory
(D) Insider and Outsider Theory
(E) Answer not known

64. Mundell-Fleming model the policy measures generally adopted by the government to correct the

(A) BOP equilibrium
(B) BOP disequilibrium
(C) BOP and BOT
(D) BOP and deficits
(E) Answer not known

65. _____ is calculated by deducting from regular estimates of national income the cost of environmental degradation and damage.

(A) GDP index
(B) GNP–NNP
(C) Green GDP
(D) GDP – Per capita
(E) Answer not known

66. The Mundell-Fleming model of BOP advocates

(A) appropriate mix of environment policy and insurance policy for correcting BOP disequilibrium
(B) appropriate monetary of fiscal policy mix for correcting BOP disequilibrium
(C) appropriate environmental policy for correcting BOP disequilibrium
(D) appropriate insurance policy for correcting BOP disequilibrium
(E) Answer not known

67. Which of the following assumption is not related to Mundell model of Balance of Payment?

(i) Monetary policy is related to changes in interest rate

(ii) Fiscal policy is related to deficit or surplus budget

(iii) Imports are a positive function of income

(iv) International capital movements do not respond to domestic interest rate changes

(A) (i) (B) (ii)

(C) (iii) (D) (iv)

(E) Answer not known

68. According to Value Added Method GNP is

(A) GNP = Gross value added + Net income from Abroad

(B) GNP = Net value added + Gross income from abroad

(C) GNP = Gross value added – Net income from Abroad

(D) GNP = Gross value added + Domestic income

(E) Answer not known

69. _____ markets, money wages are set to be contracts between workers and employers.

(A) Product (B) Commodity

(C) Money (D) Labour

(E) Answer not known

70. The sum of incomes obtained as wages, rent, interest and profit of the country called as

(A) Per capita income
(B) Social Product of the Community
(C) Personal Disposable Income
(D) National Income
(E) Answer not known

71. If X is a random variable with probability distribution $p_i = P(X = x_i) i = 0, 1, 2\ldots$ then the function $\sum P(x_i)s^i$ is known as probability generating function, if

(A) $s < 1$
(B) $s < \infty$
(C) $s \leq 1$
(D) $|s| \leq 1$
(E) Answer not known

72. The moment generating function of a distribution, if it exists, uniquely determines the

(A) Distribution
(B) Moments
(C) Mean
(D) Dispersion
(E) Answer not known

73. Assertion (A) : For Cauchy distribution $c(1, 0)$ WLLN does not hold

Reason (R) : $S_n = \sum_{i=1}^{n} x_i$ does not converge in prob, to 0

(A) Both (A) and (R) are true (R) is the correct explanation of (A)
(B) Both (A) and (R) are true (R) is not the correct explanation of (A)
(C) (A) is true but (R) is false
(D) (A) is false but (R) is true
(E) Answer not known

74. What is the mean and variance of geometric distribution?

(A) $\frac{q}{p^2}, \frac{q^2}{p}$
(B) $\frac{q}{p}, \frac{q}{p^2}$
(C) $\frac{q}{p}, \frac{p}{q^2}$
(D) $\frac{p}{q}, \frac{q}{p^2}$
(E) Answer not known

75. If 'K' toffees are distributed at random among 'n' children, the probability that a child will receive exactly 'r' toffees is

(A) $\frac{KC_r(n-1)^{n-r}}{n^K}$

(B) $\frac{KC_r(n-1)^{k-r}}{K^n}$

(C) $\frac{KC_r(n-1)^r}{n^K}$

(D) $\frac{KC_r(n-1)^{n-r}}{K^n}$

(E) Answer not known

76. Two statements (a) and (b) are given. Identify correct/incorrect statements

(a) Two mutually disjoint events with positive probabilities are always dependent events.

(b) Two independent events cannot be mutually disjoint

(A) (a) false, (b) true

(B) (a) true, (b) false

(C) (a) true, (b) true

(D) (a) and (b) false

(E) Answer not known

77. The probability of getting a difference of 3, when an ordinary die is tossed twice is

(A) 1/6
(B) 5/6
(C) 4/9
(D) 5/36
(E) Answer not known

78. The MGF of Geometric distribution is

(A) $\left(Q - Pe^{+}\right)^{-r}$
(B) $P/\left(1 - qe^{+}\right)$
(C) $q/\left(1 - Pe^{t}\right)$
(D) $\left(Q - Pe^{r}\right)$
(E) Answer not known

79. Assertion (A) : If $E_1, E_2, \ldots E_n$ are 'n' elementary events associated to a random experiment then $P(E1) + P(E2) + \ldots + P(En) = 1$

Reason (R) : For any event 'A' associated to an experiment we have $-1 \leq P(A) \leq 1$

(A) (A) is correct (R) is correct
(B) (A) is correct but (R) is incorrect
(C) (A) is incorrect but (R) is correct
(D) (A) is incorrect; (R) is incorrect
(E) Answer not known

80. The correlation between x and y of Bivariate poisson distribution is

(A) $\lambda_3 / [(\lambda_1 - \lambda_3)(\lambda_2 - \lambda_3)]^{1/2}$

(B) $\lambda_3 / [(\lambda_1 - \lambda_3)(\lambda_2 - \lambda_3)]^{-1/2}$

(C) $\lambda_3 / [(\lambda_1 + \lambda_3)(\lambda_2 + \lambda_3)]^{1/2}$

(D) $\lambda_3 / [(\lambda_1 + \lambda_3)(\lambda_2 + \lambda_3)]^{-1/2}$

(E) Answer not known

81. Let (X,Y) follows Bivariate poisson distribution with parameters $(\lambda_1, \lambda_2, \lambda_3)$ then the conditional probability generating function of X given $Y = y$ is convolution of poisson distribution with parameters λ_1 and _____

(A) Binomial distribution with index parameter x and prob. of success in $\lambda_3 / (\lambda_2 + \lambda_3)$

(B) Binomial distribution with index parameter y and prob. of success is $\lambda_3 / (\lambda_2 + \lambda_3)$

(C) Binomial distribution with index parameter y and prob. of success is $\lambda_3 / (\lambda_1 + \lambda_3)$

(D) Binomial distribution with index parameter x and prob. of success is $\lambda_3 / (\lambda_1 + \lambda_3)$

(E) Answer not known

82. Let X, Y be jointly distributed as trinomial distribution with probability mass function

$$f(x,y)=\frac{n!}{x!\,y!(n-x-y)!}p^x q^y(1-p-q)^{n-x-y},\quad \begin{matrix} x+y\le n \\ p+q<1 \end{matrix}$$

The conditional distribution of X given $X+Y$ is

(A) Binomial $\left(n, \frac{p}{p+q}\right)$

(B) Binomial $\left(n, \frac{q}{p+q}\right)$

(C) Binomial $(n, p+q)$

(D) Binomial $\left(n, \frac{1}{p+q}\right)$

(E) Answer not known

83. Choose the correct code for the following statements being correct or incorrect regarding χ^2-distribution.

Statement (I) : Normal distribution is a particular case of chi-square distribution when $n=1$

Statement (II) : Exponential distribution is a particular case of chi-square distribution when $n=2$ with mean 2

(A) Both (I) and (II) correct

(B) Statement (I) is correct but (II) is incorrect

(C) Statement (II) is correct but (I) is incorrect

(D) Both (I) and (II) are incorrect

(E) Answer not known

84. Identify the mode of the geometric distribution $\left(\frac{1}{2}\right)^x$ for $x = 1, 2\ldots$

(A) 1
(B) 0
(C) 1/2
(D) Does not exist
(E) Answer not known

85. Recall the formula for obtaining 95% confidence limits for the mean 'μ' of a normal population $N(\mu, \sigma^2)$ with known σ

(A) $-1.96 \leq \frac{\overline{X} - \mu}{\sigma / \sqrt{n}} \leq 1.96$

(B) $P\left(-Z_{\alpha/2} \leq \frac{\overline{X} - \mu}{\sigma / \sqrt{n}} \leq Z_{\alpha/2}\right) = 0.95$

(C) $\overline{X} \pm 1.96 \frac{\sigma}{\sqrt{n}}$

(D) All the above
(E) Answer not known

86. For F distribution match the following :

(a)	$n_2 > 6$	1.	Mode exists
(b)	Mode at $n = 2$	2.	Positively skewed
(c)	$n_2 > 8$	3.	Leptokurtic
(d)	$n_1 > 2$	4.	$F = 0$

	(a)	(b)	(c)	(d)
(A)	2	3	1	4
(B)	2	4	3	1
(C)	2	3	4	1
(D)	3	2	4	1

(E) Answer not known

87. For which distribution mean and variance are equal?

(A) Gamma distribution with two parameter

(B) Gamma distribution with one parameter

(C) Log normal distribution

(D) Weibull distribution

(E) Answer not known

88. Statement (i) : Geometric distribution is said to lack memory

Statement (ii) : For geometric distribution, variance is greater than the mean

(A) Statement (i) and (ii) are incorrect

(B) Statement (i) and (ii) are correct

(C) Statement (i) is correct; (ii) is incorrect

(D) Statement (i) is incorrect; (ii) is correct

(E) Answer not known

89. The Range of student-t-statistic is

(A) -1 to $+1$ (B) $-\infty$ to $+\infty$

(C) 0 to ∞ (D) 0 to 1

(E) Answer not known

90. Let x and y have a joint density function $f(x, y) = \frac{1}{2} ye^{-xy}$, $x > 0$, $2 < y < 4$. The marginal distribution $f_y(y)$ is

(A) 1 (B) $\frac{3}{4}$

(C) $\frac{1}{2}$ (D) $\frac{2}{3}$

(E) Answer not known

91. Which of the following statements are true about Cauchy distribution?

(i) The distribution has no mean and variance

(ii) The distribution has variance

(iii) The distribution has very heavy tail

(A) (i) and (ii) only (B) (i) and (iii) only

(C) (ii) and (iii) only (D) (i) only

(E) Answer not known

92. The probability density function of standard Weibull distribution is

$f(x) = Cx^{C-1} \exp\left(-x^{C}\right) : x \geq 0$

put $C = 1$, the standard weibull reduces to

(A) Weibull distribution
(B) Gamma distribution
(C) Exponential distribution
(D) Rayleigh distribution
(E) Answer not known

93. Consider the following statement regarding LRT

I. For given size 'α' of a test, the non-randomized MP lemma and likelihood ratio test of a simple null against simple alternative are equivalent

II. The likelihood ratio X always lies between 'O' and 'i'

III. For testing null against any alternative hypothesis, the likelihood ratio test is a function of every sufficient statistic for θ

IV. If λ is the likelihood ratio, then asymptotic distribution of -2 by λ is normal with mean 0 and variance 1

(A) I, II and III
(B) I, II and IV
(C) I, III and IV
(D) II, III and IV
(E) Answer not known

94. The distribution processing the memoryless property is

(A) Gamma distribution (B) Geometric distribution
(C) Hypergeometric distribution (D) Beta distribution
(E) Answer not known

95. Match the following distribution :

(a) Uniform distribution	1.	$\frac{1}{B(m,n)} x^{m-1}(1-x)^{n-1}; 0 \le x \le 1$
(b) Normal distribution	2.	$\frac{1}{b-a}, a \le x \le b$
(c) Beta distribution	3.	$\frac{1}{\sqrt{2\pi}} e^{-x^2/2}, -\infty \le x \le \infty$
(d) Exponential distribution	4.	$\frac{1}{a} e^{-x/a}, x \ge 0$

	(a)	(b)	(c)	(d)
(A)	2	1	4	3
(B)	1	2	4	3
(C)	2	3	1	4
(D)	2	4	1	3

(E) Answer not known

96. Which one of the following is not a keyword in python language?

(A) Pass
(B) Eval
(C) Assert
(D) Nonlocal
(E) Answer not known

97. A principal component analysis main objectives are

(A) Data reduction
(B) Interpretation
(C) Both (A) and (B)
(D) Descriptive statistics
(E) Answer not known

98. The fraction of observations in the training sample that are misclassified by the sample classification function is known as

(A) Total probability of misclassification

(B) Optimum error rate

(C) Mean square error

(D) Apparent error rate

(E) Answer not known

99. Choose the correct option :

Statement (1) : Hotelling T^2 statistic is a test to assess the statistical significance of the difference on the means of two or more variables between two groups.

Statement (2) : Hotelling T^2 controls the inflation of Type-I error rate by providing a single overall test of group differences across all dependent variables at a specified α level.

(A) Statement (1) and (2) are correct

(B) Statement (1) and (2) are incorrect

(C) Statement (1) is correct ; Statement (2) is incorrect

(D) Statement (1) is incorrect ; Statement (2) is correct

(E) Answer not known

100. Let $U_i \rightarrow N_p(\mu_i, \Sigma_i)$, $i = 1, 2, ...n$ be all independent. Then for fixed constants $A_1, A_2, ...A_n$ $Y = A_1U_1 + A_2U_2 + ... + A_nU_n$ follows

(A) $N_p(\mu_i, \Sigma_i)$

(B) $N_p(\Sigma\mu_i, \Sigma\Sigma_i)$

(C) $N_p(\Sigma A_i\mu_i, \Sigma A_i^2 \Sigma_i)$

(D) $N_p(\Sigma A_i\mu_i, \Sigma A_i \Sigma_i)$

(E) Answer not known

101. If the linear predictor η is defined by the transformation $\eta = \ln \frac{\pi}{1-\pi}$ in logistic response functions. The transformation is called

(A) Probit transformation
(B) Logit transformation
(C) Log-log transformation
(D) Normal transformation
(E) Answer not known

102. Let there be two multivariate normal populations with equal covariance matrices namely $N(\mu^{(1)}, \Sigma)$ $N(\mu^{(2)}, \Sigma)$. The discriminant function is

(A) $x^1\Sigma^{-1}(\mu^{(1)} - \mu^{(2)})$
(B) $\Sigma^{-1}(\mu^{(1)} - \mu^{(2)})$
(C) $x^1(\mu^{(1)} - \mu^{(2)})$
(D) $x^1\Sigma(\mu^{(1)} - \mu^{(2)})$
(E) Answer not known

103. Mention the correct statements are true about linear discriminant analysis in making the class-conditional data distributions?

(i) They are uniform distributions
(ii) They are Gausian distributions
(iii) They are Binomial distributions

(A) (i) only
(B) (iii) only
(C) (i) and (ii) only
(D) (ii) and (iii) only
(E) Answer not known

104. Let $\underset{\sim}{X} = (X_1, X_2, X_3)$ be $N_3(\mu, \Sigma)$ with $\underset{\sim}{\mu}'(2 \ -3 \ 1)$ and $\Sigma = \begin{pmatrix} 1 & 1 & 1 \\ 1 & 3 & 2 \\ 1 & 2 & 2 \end{pmatrix}$. The mean vector of distribution $3X_1 - 2X_2 + X_3$ is

(A) 10
(B) 11
(C) 12
(D) 13
(E) Answer not known

105. For a bivariate normal population $\sigma_{11} = 2$, $\sigma_{22} = 4$ and $\rho_{12} = \rho = 0.5$ then the value of σ_{12} is

(A) $\sqrt{2}$
(B) 2
(C) 4
(D) $2\sqrt{2}$
(E) Answer not known

106. In multivariate normal distribution, the partial correlation between X_i and X_j holding $X_{q+1}, \ldots\ldots, X_p$ fixed is

(A) $\rho_{ij,\, q+1,\ldots p} = \dfrac{\sigma_{ij},\, q_{+1},\ldots p}{\sqrt{\sigma_{ij,\, q+1,\ldots p}} \cdot \sqrt{\sigma_{ij,\, q+1\ldots\ldots p}}},\ i,\ j = 1, \ldots\ldots q$

(B) $\rho_{ij,\, q+1,\ldots p} = \dfrac{\sigma_{ii},\, q_{+1},\ldots p}{\sqrt{\sigma_{ii,\, q_n,\ldots p}}\ \sqrt{\sigma_{jj,\, q_n\ldots\ldots p}}},\ i,\ j = 1, \ldots\ldots q$

(C) $\rho_{ij,\, q_n\ldots p} = \dfrac{\sigma_{jj},\, q_n,\ldots p}{\sqrt{\sigma_{ii,\, q_n,\ldots p}}\ \sqrt{\sigma_{jj,\, q_n\ldots\ldots p}}},\ i,\ j = 1, \ldots\ldots q$

(D) $\rho_{ij,\, q_n\ldots p} = \dfrac{\sigma_{ij},\, q_n,\ldots p}{\sqrt{\sigma_{ij,\, q_n,\ldots p}}\ \sqrt{\sigma_{jj,\, q_n\ldots\ldots p}}},\ i,\ j = 1, \ldots\ldots q$

(E) Answer not known

107. A p-dimensional random variable U, that is a random variable U taking values in E_p is said to have a p- variate normal distribution N_p if and only if every linear functions of U has a

(A) Univariate normal distribution
(B) Bivariate normal distribution
(C) Multivariate normal distribution
(D) Standard normal distribution
(E) Answer not known

108. If X is distributed according to p component normal distribution with mean μ and variance covariance matrix Σ and $X = \begin{pmatrix} X^{(1)} \\ X^{(2)} \end{pmatrix}$. The density $f\left(x^{(1)}/x^{(2)}\right)$ is a q variate normal distribution with mean.

(A) $\mu^{(1)} + \Sigma_{12}\Sigma_{22}^{-1}\left(x^{(2)} - \mu^{(2)}\right)$
(B) $\Sigma_{12}\Sigma_{22}^{-1}\left(x^{(2)} - \mu^{(2)}\right)$
(C) $\mu^{(1)} + \Sigma_{22}^{-1}\left(x^{(2)} - \mu^{(2)}\right)$
(D) $\mu^{(1)} + \Sigma_{12}\left(x^{(2)} - \mu^{(2)}\right)$
(E) Answer not known

109. Which of the following statements are true about Hotelling's – T^2?

(i) Hotelling's – T^2 is variant.

(ii) Hotelling's T^2 is invariant under singular linear transformations

(iii) Hotelling's T^2 is invariant under non-singular linear transformations

(A) (i) only
(B) (ii) only
(C) (iii) only
(D) (i) and (ii) only
(E) Answer not known

110. Let $X_1 X_2 .... X_n$ be a random sample of size N from a p- variate normal distribution with mean and covariance matrix Σ, then

(i) $\tilde{X}$ is distributed as $N_p\left(\mu, \left(\frac{1}{n}\right)\Sigma\right)$

(ii) $(N-1)S$ is distributed as a without random matrix with $(N-1)$ d.f.

(iii) $\hat{X}$ and S are independently distributed

Which of the above statements are correct?

(A) (i) only
(B) (ii) and (iii) only
(C) (i) and (ii) only
(D) (i), (ii) and (iii)
(E) Answer not known

111. A situation when there is more than one possible outcome of a decision and the probability of each outcome is either known or can be estimated?

(A) Uncertainty
(B) Risk
(C) Choice
(D) Preference
(E) Answer not known

112. Indifference curve analysis the budget line represents that :

(A) The prices of the goods and consumer's expenditure pattern
(B) The prices of the goods and consumer's real income
(C) The prices of the goods and consumer's money income
(D) Quantity of goods and consumer's money income
(E) Answer not known

113. With regard to insurance market, the devices of _____ and the _____ have been adopted to tackle the problem of moral hazard that arises due to asymmetric information.

1. Adverse selection
2. Lemon issues
3. Deductibles
4. Coinsurance

(A) 1 and 2 only
(B) 2 and 3 only
(C) 3 and 4 only
(D) 1 and 4 only
(E) Answer not known

114. _____ theory has been applied to the problems of subjected other than economics.

(A) Cournot
(B) Price output
(C) Game
(D) Excess capacity
(E) Answer not known

115. "A person or firm's behaviour which may change after buying insurance so that it increases the probability of theft, fire, illness or other accident" it is called

(A) Moral Hazard
(B) Hazard
(C) Insurance
(D) Risk
(E) Answer not known

116. A Neo-cardinalist revival in recent years of demand theory represented by

(A) Morgenstern and Neumann
(B) Hicks
(C) Marshall
(D) Armstrong
(E) Answer not known

117. At the point of equilibrium the slope of the indifference curve and the budget line should be the

(A) Upper
(B) Lower
(C) Concave
(D) Same
(E) Answer not known

118. Utility is measurable under

(A) Cardinal utility approach
(B) Ordinal utility approach
(C) Revealed preference theory approach
(D) Logical weak ordering approach
(E) Answer not known

119. The total utility of a quantity of a commodity is maximum, when the marginal utility is

(A) one
(B) < one
(C) zero
(D) > one
(E) Answer not known

120. According to slutskey's theorem, the income effect of a price change is

(A) negative for both normal good and inferior good

(B) positive for normal good and negative for inferior good

(C) negative for normal good and positive for inferior good

(D) positive for both normal good and inferior good

(E) Answer not known

121. The revealed preferences permit us to construct the indifference map of the consumer just by observing his behaviour (his choise) at various market prices, provided that

(A) his choise is consistant

(B) his tastes are independent of his choise over time

(C) he is rational

(D) all the above

(E) Answer not known

122. The law of demand assuming other things to remain the same, establishes the relationship between

(A) quantity demanded of a good and the relative prices of its substitute goods

(B) price of a good and the supply of substitute goods

(C) price of a good and the quantity demanded in the market

(D) income of the consumer and the quantity of a good demanded by him/her

(E) Answer not known

123. "You can make some one happier if you give him cash instead of a commodity; even if the commodity is some thing he wants". This can be applied in

(A) Law of demand theory

(B) Consumer surplus

(C) Govt. subsidy

(D) Lumpsum cash subsidy

(E) Answer not known

124. AFC is the per unit cost of the variable factor by a firm, it is obtained by

(A) $AFC = \frac{TVC}{\text{Units of factor employed}}$

(B) $AFC = \frac{TFC}{TVC}$

(C) $AFC = \frac{TFC}{TAC}$

(D) $AFC = \frac{TFC}{\text{Units of factor employed}}$

(E) Answer not known

125. The distinguishing feature of monopolistic competition which makes it as a blending of competition and monopoly is

(A) Differentiation of the product

(B) No differentiation of the product

(C) Homogeneous product

(D) Perfect market

(E) Answer not known

126. The firm working under perfect competition in factor market but monopoly or imperfect competition in the product market would also be in equilibrium position arrive

(A) MRP = MFC and MRP cuts MFC from below
(B) MRP = MFC and MRP cuts MFC from above
(C) MRP ≠ MFC and MRP cuts MFC from above
(D) MRP ≠ MFC and MRP cuts MFC from below
(E) Answer not known

127. _____ makes changes in prices which are best from the viewpoint of all firms in the industry and other firms follow him willingly.

(A) Low-cost price leadership
(B) Dominant firm price leadership
(C) Barometric price leadership
(D) Exploitative price leadership
(E) Answer not known

128. Which one is not related to modern theory of distribution?

(i) The various units of a factor heterogeneous and perfect substitutes of each.
(ii) There exists perfect competition in commodity and factor markets.
(iii) Each factor is perfectly divisible.
(iv) The law of variable proportions operations in production

(A) (i) (B) (ii)
(C) (iii) (D) (iv)
(E) Answer not known

129. The _____ demand curve represents the pattern of business behaviour of a firm which has no incentive either to raise or to lower its price

(A) Price
(B) Income
(C) Cross
(D) Kinked
(E) Answer not known

130. A monopolist maximizes his short run profit if the following two conditions are satisfied.

(A) MC = MR and Slope of MC > Slope of MR at point of intersection
(B) MC > MR and Slope of MC > Slope of MR at point of intersection
(C) MC < MR and Slope of MC < Slope of MR at point of intersection
(D) MC > MR and Slope of MC < Slope of MR at point of intersection
(E) Answer not known

131. Land reform aim at redistributing ownership holding from the viewpoint of

(A) Social justice
(B) Ryotwari
(C) Mahalwari
(D) Zamindari
(E) Answer not known

132. The magnitude of regional imbalances can be revealed by the following indicators

(1) Incidence of poverty.

(2) Urban population as percent of total population

(3) Per capita availability of power

(4) Per capita availability of water

(A) (1) only
(B) (2) only
(C) (3) only
(D) (1), (2), (3) only
(E) Answer not known

133. "An unemployment is caused due to improper adjustment between the supply and demand of labour" is

(A) Open unemployment
(B) Frictional unemployment
(C) Educated unemployment
(D) Cyclical unemployment
(E) Answer not known

134. In 1951-52 Indian agriculture productivity per hectare and per worker was

(A) Low
(B) Extremely low
(C) High
(D) Extreme
(E) Answer not known

135. As per the year 2023 information, the MGNREGA is being run in

(A) 540 districts
(B) 620 districts
(C) 740 districts
(D) 820 districts
(E) Answer not known

136. The period which is considered as a period of industrial recovery is

(A) 1961 to 1971
(B) 1971 to 1981
(C) 1981 to 1991
(D) 1991 to 2001
(E) Answer not known

137. The latter is often referred to as period of the 'Green Revolution' and as would be clear marked by rapid strides in

(A) Rice
(B) Wheat
(C) Millets
(D) Cotton and Jute
(E) Answer not known

138. Chairperson for National Commission on labour and review of labour laws in 1999 is

(A) Mr. Ravindra Varma
(B) Mr. Narendra Modi
(C) Mr. Manmohan Singh
(D) Mr. P.V. Narasimha Rao
(E) Answer not known

139. During 2005-06 to 2013-2014, Tamilnadu economy's average growth rate of real gross state domestic product was _____%.

(A) 8.20%
(B) 9.20%
(C) 10.20%
(D) 11.20%
(E) Answer not known

140. A large amount of world capital movement takes place through

(A) FDI
(B) MNC
(C) SEZs
(D) EPZs
(E) Answer not known

141. "The gross inefficiency of production and not able to employ proportionately larger population in industry are the failure of Five Year Plant" said by

(A) Prof. Sukhanoy Chakravarty
(B) Prof. R.K. Rao
(C) Prof. V.K. Ramasamy
(D) Prof. M.S. Swaminathan
(E) Answer not known

142. Which is not the criticism of the new industrial policy?

(A) Erratic and fluctuating industrial growth
(B) Distortion in the production structure
(C) False faith in foreign investment
(D) Equal competition from MNCs.
(E) Answer not known

143. The planning process in India suffered from the

(A) The efficiency of allocation of resources
(B) Efficiency of administration
(C) Good Technical Assistance
(D) Lack of Financial Strategy
(E) Answer not known

144. The Twelth Five Year Plan started on

(A) March 1, 2013–2018
(B) April 1, 2011–2016
(C) April 1, 2012–2017
(D) March 1, 2010–2015
(E) Answer not known

145. The Tenth Five Year Plan started in the year

(A) 2007
(B) 2010
(C) 2012
(D) 2002
(E) Answer not known

146. Arrange the correct chronological order of the events pertaining to Family Welfare Programme in India?

(i) National Rural Health Mission (NRHM)
(ii) Reproductive and Child Health Programme (RCH)
(iii) Child Survival and Safe Motherhood Programme (CSSM)
(iv) Maternal and Child Health Programme (MCH)

(A) (i), (ii), (iii) and (iv)
(B) (ii), (i), (iii) and (iv)
(C) (iii), (i), (iv) and (ii)
(D) (iv), (iii), (ii) and (i)
(E) Answer not known

147. ———— is the only state to experience rainfall from the South-West Monsoon (June-September) and the North-East monsoon (October - December).

(A) Andra Pradesh
(B) Kerala
(C) Tamil Nadu
(D) Hariyana
(E) Answer not known

148. ———————— major economic challenge facing India?

(i) Low Agricultural Productivity

(ii) High Literary Rates

(iii) High infrastructure development

(iv) Low inflation rate

(A) (i) only

(B) (i) and (iv) only

(C) (ii) and (iii) only

(D) (iii) and (iv) only

(E) Answer not known

149. ———————— unemployment opportunities has been setup by the planning commission to examine the existing employment and unemployment situation in the country.

(A) Capital intensive

(B) Organisation hurdles

(C) A potential saving

(D) A Task Force

(E) Answer not known

150. Match the following :

(a) HDI		1.	Empowerment
(b) HDR		2.	Poverty
(c) GII		3.	Education
(d) MPI		4.	Knowledge

	(a)	(b)	(c)	(d)
(A)	3	4	1	2
(B)	2	4	1	3
(C)	4	2	1	3
(D)	1	4	3	2

(E) Answer not known

151. Tamil Nadu has consistently excelling in the States Enrolment Ratio (SER) stands at elementary schools.

(A) 95.8% (B) 96.6%

(C) 97.5% (D) 98.4%

(E) Answer not known

152. The present position of India's Human Development Index (HDI) ranking at global level is

(A) 110 (B) 120

(C) 130 (D) 140

(E) Answer not known

153. The second phase of fertility transition indicates

(A) Fall in fertility and mortality
(B) Fall in fertility and increase in mortality
(C) Increase in fertility and fall in mortality
(D) Increase in fertility and mortality
(E) Answer not known

154. The multidimensional poverty index was included in HDI in the year

(A) 1990
(B) 2000
(C) 2010
(D) 2020
(E) Answer not known

155. According to National Accounts Statistics (NAS) the unorganised sector to accounts in 2016-17 is

(A) 40 percent
(B) 35 percent
(C) 38 percent
(D) 43 percent
(E) Answer not known

156. Economic growth refers to the process of enlarging or widening _____ and _____

(1) Demand
(2) People's choice
(3) Level's well being
(4) Consumption

(A) (1) and (2) only
(B) (2) and (3) only
(C) (3) and (4) only
(D) (1) and (4) only
(E) Answer not known

157. A person's unemployment status is measured for each day of a reference week called as

(A) Current daily status
(B) Current weekly status
(C) Usual activity status
(D) Unemployed status
(E) Answer not known

158. Match the following :

(a) The Swarna Jayanti shahari Rozgar Yojana	(1) NREP
(b) The National Rural Employment Programme	(2) SJSRY
(c) Swarnajayanti Gram Swarozgar Yojana	(3) PMRY
(d) Prime Minister's Rozgar Yojana	(4) SGSY

	(a)	(b)	(c)	(d)
(A)	4	3	1	2
(B)	4	1	2	3
(C)	2	1	4	3
(D)	3	4	2	1

(E) Answer not known

159. The term used to denote tiny units, engaged in the production of goods and services but whose activities are not recognised, recorded, protected or regulated by the public authorities is

(A) Formal sector
(B) Informal sector
(C) Unorganised sector
(D) Organized sector
(E) Answer not known

160. The number of girls per 1000 boys in the 0-6 age group is

(1) Sex Ratio

(2) Literacy Ratio

(3) Employment Ratio

(4) Child-sex Ratio

(A) only (2)
(B) only (4)
(C) only (1)
(D) only (3)
(E) Answer not known

161. "The aggregate stock of internally acceptable assets held by the Central Bank to settle a deficit in country's balance of payments" it is called

(A) Internation investment
(B) International Liquidity
(C) Internation saving
(D) International Transaction
(E) Answer not known

162. _____ is reserve assets in IMF designed to supplement reserves of gold and convertible currencies to maintain exchange rate stability.

(A) International consultations
(B) Special drawing rights
(C) WTO agreements
(D) International Borrowings
(E) Answer not known

163. Which country was proposed to establish an 'International stabilisation fund of the United and Associated Nations' in the year 1943?

(A) Germany
(B) Great Britain
(C) United States of America
(D) France
(E) Answer not known

164. The International Bank for Reconstruction and Development established for

(A) To provide short-term investment loans
(B) To provide medium - term investment loans
(C) To provide long-term investment loans
(D) None of these above
(E) Answer not known

165. International Bank of Reconstruction and Development is popularly known as the

(A) IMF
(B) World Bank
(C) ADB
(D) SDR
(E) Answer not known

166. Gannage explain _____ dualism as a lack of communications and exchange between regions, the capital sometimes an island which, in geographical terms, belongs to the developing country.

(A) International
(B) National
(C) Regional
(D) Social
(E) Answer not known

167. _____ is help to correct the disequilibrium of balance of payment?

(A) Tariffs-import duties
(B) Export promotion
(C) Exchange control
(D) Export programmes
(E) Answer not known

168. An existence of two distinct sectors in an underdeveloped economy. A modern commercialized industrial sector is developed alongside a traditional subsistence agriculture sector is

(A) Unlimited supplies of labour
(B) Social dualism
(C) Technological dualism
(D) Dualism
(E) Answer not known

169. Under the flexible exchange rates, the disequilibrium in the balance of payments automatically solved by

(A) The forces of demand and supply of foreign exchange
(B) The forces of price and supply of foreign exchange
(C) The forces of price and demand of foreign exchange
(D) The forces of effective demand and price of foreign exchange
(E) Answer not known

170. _____ is not issue of pertaining to the capital account in balance of payments.

(A) External commercial borrowings
(B) NRI deposits
(C) Short term debts
(D) Long term debts
(E) Answer not known

171. "The economy becomes self-reliant, it means that the economy can develop without external assistance", According to Rostow this is the growth stage of ————————

(A) Third stage of growth of take-off
(B) Pre-condition stage
(C) The traditional stage
(D) The drive to maturity
(E) Answer not known

172. "Take off is an industrial revolution, tied directly to radical changes in methods of production, having their decisive consequences over a relatively short period of time", quote by

(A) J.A. Schumpeter
(B) W.W. Rostow
(C) T.W. Schultz
(D) Harrod – Domar
(E) Answer not known

173. Match the correct answers for W.W. Rostow, the process of economic development.

(a)	The traditional society	1.	Sustained growth extending over four decades
(b)	The pre-conditions for take-off	2.	Period of this stage is 20 to 30 years
(c)	The take-off	3.	The Pre-Newton Era
(d)	The drive to maturity	4.	Slow changes

	(a)	(b)	(c)	(d)
(A)	3	4	2	1
(B)	3	2	4	1
(C)	4	3	2	1
(D)	1	2	3	4

(E) Answer not known

174. According to Harrod, the rate "at which producers will be content with what they are doing", it is called

(A) The unwarrented rate of growth
(B) The warrented rate of growth
(C) The balanced rate of growth
(D) The unbalanced rate of growth
(E) Answer not known

175. The success of imbalanced growth needs

(A) Existence of full employment
(B) Equality between demand and supply
(C) Exponential growth of capital
(D) Wise selection of projects
(E) Answer not known

176. In time series mathematical model $y_t = T_t * S_t * C_t * R_t$, identify the term which will not appear in a series of annual data

(A) T_t – trend values
(B) S_t – Seasonal
(C) C_t – Cyclic
(D) R_t – Random fluctuations at time t
(E) Answer not known

177. A symmetric logistic curve also known as _____ curve.

(A) Exponential
(B) Pearl Reed
(C) Gompertz
(D) Parobolic
(E) Answer not known

178. ARIMA model in a time series analysis have the following assumptions.
(i) The data is stationary and the residuals are normally distributed
(ii) The data has a fixed trend

(A) Only (i) correct
(B) Only (ii) correct
(C) Both (i) and (ii) are correct
(D) Both (i) and (ii) are incorrect
(E) Answer not known

179. To determine the appropriate values for p and q in ARIMA (p,d,o) or ARIMA (o,d,q) we

(A) ACF and scree plot
(B) ACF and Pace plot
(C) PACE and bubble charts
(D) Area chart and bubble chart
(E) Answer not known

180. In time series analysis, the "adjusted" R^2 statistic is adjusted for the number of _____ in the model.

(A) Observations
(B) Parameters
(C) Lags
(D) Errors
(E) Answer not known

181. A time series is said to be strictly stationary if its properties are not affected by

(A) Change in the time origin
(B) Change in the time scale
(C) Change in the time value
(D) Change in the time lag
(E) Answer not known

182. The deliberate introduction of non-orthogonality in a design in order to get better estimates and tests on important comparisons is called

(A) Confounding
(B) Replication
(C) Randomization
(D) Factorization
(E) Answer not known

183. When the number of treatments is very small, _____ design does not provide sufficient number of degrees of freedom to give a reliable estimate of error variance.

(A) CRD – Completely Randomized Design
(B) RBD – Randomized Block Design
(C) LSD – Latin Square Design
(D) Factorial Design
(E) Answer not known

184. If in a block, the number of experimental units is smaller than the number of treatments, then the design is said to be

(A) Balanced design
(B) Resolvable design
(C) Complete block design
(D) Incomplete block design
(E) Answer not known

185. _____ can be used, even when all the factors are not of equal importance

(A) Split plot design
(B) Completely Randomised design
(C) Latin square design
(D) Randomised Block design
(E) Answer not known

186. In 2^n factorial experiment in "r" randomized blocks, the error degrees of freedom is

(A) $(r-1)(2^n-1)$ (B) $r \cdot 2^{n-1}$

(C) $(r-1) \cdot 2^{n-1}$ (D) $r \cdot (2^n-1)$

(E) Answer not known

187. In simple random sampling standard error of an estimate of the population total Y is

(A) $\frac{N^2 S^2}{n}(1-f)$ (B) $\frac{N}{n} S^2 (1-f)$

(C) $\frac{N}{n} S^2$ (D) $\frac{NS}{n}(1-f)$

(E) Answer not known

188. In regression estimator, the best value of b_0 is

(A) $S_{yx} \mid S_x^2$ (B) $Sx^2 \mid S_{yx}$

(C) $S_{xy} \mid S_y^{\,2}$ (D) $S_y^{\,2} \mid S_{xy}$

(E) Answer not known

189. A population of N units is divided into K strata. A sample of size 'n' is to be selected. Let N_j is the j[th] stratum size and 'n_j' the sample size from it $(j = 1,2k)$. Recall the formula for the selection of 'n_j' under proportional allocation.

(A) $n_j = \frac{N}{n}$

(B) $n_j = \frac{N}{N_j}$

(C) $\frac{n_j}{N_j} = \frac{n}{N}$

(D) $n_j N_j = N_n$

(E) Answer not known

190. In a sampling method, the principal of optimization is related to

(A) Validity of estimates

(B) Asymptotic property of estimates

(C) Efficiency and cost of sampling design

(D) Time and validity of sampling design

(E) Answer not known

191. If a population consists of 10 units and SRSWOR is adopted, the probability of selecting a specified sample of 2 units is

(A) $\frac{1}{10}$

(B) $\frac{1}{45}$

(C) $\frac{1}{90}$

(D) $\frac{1}{100}$

(E) Answer not known

192. _____ sampling may yield highly unbiased estimates if there are periodic features associated with the sampling internal

(A) Simple Random
(B) Cluster
(C) Stratified
(D) Systematic
(E) Answer not known

193. Match the following

Sampling method	Characteristics
(a) Stratified sampling	1. Every Kth Unit selected
(b) Systematic sampling	2. $\hat{Y}_R = \frac{\overline{y}}{\overline{x}} \cdot x$
(c) Ratio estimator	3. $\hat{y}_{er} = \overline{y} + b(\overline{x} - \overline{x})$
(d) Regression Estimator	4. Dividing into homogeneous subgroups

	(a)	(b)	(c)	(d)
(A)	4	1	2	3
(B)	4	1	3	2
(C)	1	4	2	3
(D)	1	2	3	4

(E) Answer not known

194. A BIBD is said to be symmetric if

(A) $b \neq v$ and $r = k$
(B) $b = v$ and $r \neq k$
(C) $b \neq v$ and $r \neq k$
(D) $b = v$ and $r = k$
(E) Answer not known

195. Identify the correct statements

(i) Weekly price quotations for the selected items/commodities for compilation of Wholesale Price Index (WPI) are collected each week.

(ii) For WPI price data are collected through only official sources.

(A) Both (i) and (ii) are correct

(B) (i) is correct (ii) is incorrect

(C) (i) is incorrect (ii) is correct

(D) Both (i) and (ii) are incorrect

(E) Answer not known

196. Aggregate expenditure method is based upon

(A) Fishers method

(B) Laspeyer's method

(C) Bowley's method

(D) Paasche's method

(E) Answer not known

197. The range of homogenity error in reference to index numbers is

(A) 0 to 1

(B) 0 to ∞

(C) -1 to $+1$

(D) $-\infty$ to $+\infty$

(E) Answer not known

198. Series of index numbers of wholesale prices was introduced in the year

(A) 1974

(B) 1977

(C) 1971

(D) 1967

(E) Answer not known

199. Which is the most appropriate average used in the construction of index number?

(A) Geometric mean
(B) Simple arithmetic mean
(C) Weighted arithmetic mean
(D) Median
(E) Answer not known

200. Circular test is an extension of

(A) Time reversal test
(B) Factor reversal test
(C) Unit test
(D) Sampling test
(E) Answer not known