Combined Technical Services Examination

(NON – INTERVIEW POSTS)

COMPUTER BASED TEST

DATE OF EXAM : 09.09.2026 A.N.

PAPER – II : EVALUATION AND APPLIED RESEARCH (PG DEGREE STANDARD),

SUB. CODE : 607

1. Arrange the following in chronological order

(1) Human Relations Theory

(2) The social problems of an Industrial civilization

(3) The political problems of an industrial civilization

(4) The human problems of industrial civilization

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

2. Assertion [A] Reason [R] type questions :

Assertion [A] : No organisation can be run without taking decisions.

Reason [R] : Decision making is the essence of all management.

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

3. Who among the following described classical approach as the engineering approach?

(A) Gulick
(B) Fayol
(C) Urwick
(D) Moorey
(E) Answer not known

4. The Chairman and members of the National Human Right Commission hold office until the age of

(A) 70 years
(B) 65 years
(C) 75 years
(D) 62 years
(E) Answer not known

5. Consider the following statements and choose the correct answer

(i) The National Human Rights Commission is a Constitutional Body

(ii) The National Human Rights Commission is a statuatory body

(iii) It is enacted by the parliament

(iv) It holds power of civil court on the matter of punishment

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

6. The Tamil Nadu Working Women Hostels Corporation Limited was established by _____ under the companies Act.

(A) Board Type of Organisation
(B) Special Purpose Vehicle
(C) Department
(D) Matrix Type of Organisation
(E) Answer not known

7. In which year the Tamil Nadu State Policy for women was approved?

(A) 2021
(B) 2022
(C) 2023
(D) 2024
(E) Answer not known

8. The head of the department in the Mauriyan Administration was named as the

(A) Yukta
(B) Upayukta
(C) Adhyaksa
(D) Amatya
(E) Answer not known

9. The pyramid type of organisational structure (Scalar Process) was pioneered by

(A) J.D. Moorey and Marshall E. Dimock
(B) J.D. Moorey and Alan C. Reiley
(C) Marshall E. Dimock and Luther Gullick
(D) L.D. White and Lyndal Urwick
(E) Answer not known

10. Who remarked? "One wheel (alone) does not turn and keep the cart in motion"

(A) Thiruvalluvar
(B) Kautilya
(C) Taylor
(D) Luther Gullick
(E) Answer not known

11. Civil Service is a professional body of officials, permanent, paid and skilled is a definition given by

(A) Herman Finer
(B) L.D. White
(C) Woodrow Wilson
(D) Henri Fayol
(E) Answer not known

12. The literature of New Public Administration lays emphasis on _____ major themes.

(A) Five
(B) Six
(C) Seven
(D) Eight
(E) Answer not known

13. Which of the following article of the Indian constitution deals with 'Votes on Account' and 'Votes of credit and exceptional grants'?

(A) Article 114
(B) Article 116
(C) Article 115
(D) Article 111
(E) Answer not known

14. Article deals with the tax levied by the union, but are collected and appropriated by the states

(A) Art 265
(B) Art 267
(C) Art 264
(D) Art 268
(E) Answer not known

15. Which Article of the Indian Constitution says that 'No tax can be levied in collected except by Authority of law'?

(A) Article 260
(B) Article 263
(C) Article 265
(D) Article 267
(E) Answer not known

16. Who stated that "Budget is the life blood of the Government"?

(A) F.A. Nigro
(B) Gladstone
(C) Aaron Wildavsky
(D) Willoughby
(E) Answer not known

17. Choose the right matches :

	Name of the Committee		Chairman
(1)	Committee on the Training of Municipal Employees	–	Nur-ud-din Ahmed
(2)	Committee on service conditions of Municipal Employees	–	B.S. Murthy
(3)	Committee on budgetary reform in Municipal Administration	–	K.N. Sahaya
(4)	Committee of Ministers on Augmentation of Financial Resources of Urban Local Bodies	–	A.P. Jain

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

18. Choose the right matches :

	Committee/Commission name		Years
(1)	The Local Finance Enquiry Committee	–	1949 – 51
(2)	The National Commission on urbanization	–	1988
(3)	The Rural-urban Relationship Committee	–	1955
(4)	The Taxation Enquiry Commission	–	1960

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

19. The Government of Tamil Nadu launched the Green Tamil Nadu Mission in 2021 to increase the tree and forest cover of the state to _____

(A) 33%
(B) 34%
(C) 35%
(D) 36%
(E) Answer not known

20. Name the Commission to review and analyse the urbanization process and formulate policies for integrated urban development

(A) National Urbanisation Commission
(B) National Commission on Urbanization
(C) Rural-Urban Relationship Commission
(D) National Urban Development Commission
(E) Answer not known

21. _____ is concerned with the descriptive documentation of living cultures?

(A) Ethnography
(B) Longitudinal study
(C) Case study
(D) Historical study
(E) Answer not known

22. What is the correct order of the stages of field work?

(A) Involvement, adjustment, achievement
(B) Achievement, adjustment, involvement
(C) Achievement, involvement, adjustment
(D) Adjustment, involvement, achievement
(E) Answer not known

23. An outstanding example of the 'Symbiotic trade relations' is found in

(A) The Nilgiris of South India
(B) The Ituri forest of Congo Africa
(C) The Queensland of Australia
(D) The Northeastern Siberia
(E) Answer not known

24. Who said it "Both Magic and Religion are confidence building mechanisms"?

(A) A.R. Radcliffe Brown
(B) Raymond Firth
(C) Max Weber
(D) Bronislaw Malinowski
(E) Answer not known

25. The British social Anthropologist who did ethnographic work among the Todas of Nilgiri Hills

(A) A.R. Radcliffe Brown
(B) Seligman
(C) Edmund Leach
(D) W.H.R. Rivers
(E) Answer not known

26. Who among the following said "Archaeological anthropology is the systematic study of man's prehistoric past"

(A) V. Gorden child
(B) S.L. Washburn
(C) Dell Hymes
(D) A.R. Radcliffe Brown
(E) Answer not known

27. The author of the book, "Man in the primitive world (1949)" is

(A) Hoebel
(B) Frans Boas
(C) Charles Darwin
(D) Herskovits
(E) Answer not known

28. Homo heidelbergensis was discovered in

(A) 1906
(B) 1907
(C) 1908
(D) 1909
(E) Answer not known

29. Modification of Jaw, Bipedalism, Enlargement of brain is an example of

(A) Hominization process
(B) Socialization process
(C) Modernization process
(D) Westernization process
(E) Answer not known

30. Which among the following society is considered unstratified

(A) Egalitarian society
(B) Rank society
(C) Class society
(D) All of the above
(E) Answer not known

31. Which of the following term related to 'Adivasi'?

(A) Vanya Jati
(B) Scheduled caste
(C) Class
(D) Peasant
(E) Answer not known

32. Who studied peasant culture in India and Mexico

(A) Merton R.
(B) Sol-Tax
(C) Milton-Singer
(D) Oscar Lewis
(E) Answer not known

33. Which of the following is a key characteristic of peasant societies?

(A) High levels of industrialization
(B) Reliance on farming for subsistence
(C) Lack of social hierarchies
(D) Extensive use of technology in agriculture
(E) Answer not known

34. Which of the following is a key characteristic of the Harappan civilization?

(A) Advanced Urban planning
(B) Use of iron tools
(C) Development of a complex script
(D) Widespread use of horses
(E) Answer not known

35. 'RRA' stands for?

(A) Rural Research Action
(B) Rapid Rural Appraisal
(C) Rural Research Anthropology
(D) Rural Research Appraisal
(E) Answer not known

36. Action anthropology is mostly concerned with

(A) The study of human activity
(B) The study of social action
(C) Studies cultural behaviour of man
(D) Applied anthropology
(E) Answer not known

37. Sudanese kinship is also referred to as

(A) Descriptive system
(B) Generational system
(C) Lineal system
(D) Bifurcate merging system
(E) Answer not known

38. The formal appearance of a culture derived from its constituents ————?

(A) Ethos
(B) Values
(C) Eidos
(D) Norms
(E) Answer not known

39. When an individual traces his descent from father side it is known as ————?

(A) Matrilineal descent
(B) Patrilineal descent
(C) Double descent
(D) Equal inheritance
(E) Answer not known

40. Who wrote the influential book "A critique of the study of kinship" (1984)?

(A) David M. Schneider
(B) Margaret Mead
(C) Bronislaw Malinowski
(D) Iravati Karve
(E) Answer not known

41. Statement I : ERP is a cross functional enterprise system that integrates and automates many internal business process of a company particularly manufacturing.

Statement II : The software is helping a company to achieve the efficiency, agility to succeed in business environment.

From the above Statements choose the appropriate options from below.

(A) Statement I is correct, but II explanation is not correct

(B) Statement I is wrong, but II is correct explanation

(C) Statement I is correct, Statement II is correct explanation

(D) Both the Statements are not related to ERP

(E) Answer not known

42. Efficient forecasting, demand, controlling inventory, enhancing business relationships with customers and suppliers and web enabled support is provided by ———

(A) B2B and B2C

(B) Enterprise process

(C) Block-chain technology

(D) Supply chain management

(E) Answer not known

43. In an EOQ problem, if holding costs increase by 25% while demand and ordering cost remain the same, the EOQ will

(A) Increase by 12%

(B) Decrease by 12.5%

(C) Increase by 25%

(D) Decrease by 11.8% (approx)

(E) Answer not known

44. Capacity planning guides our choices on ———— for the long time.

(1) Capacity

(2) Locations

(3) Layout

(4) All of the above

(A) (1) only (B) (2) only

(C) (2) and (3) only (D) (4) only

(E) Answer not known

45. Assertion and Reasoning

Assertion (A) : PERT is better suited for research and development project compared to CPM.

Reason (R) : PERT uses three time estimates optimistic, most likely and pessimistic to account high uncertainty in activity durations.

(A) Both (A) and (R) are correct and (R) is the correct explanation

(B) Both (A) and (R) are correct and (R) is the wrong explanation

(C) (A) is correct but (R) is wrong

(D) (A) is wrong but (R) is correct

(E) Answer not known

46. The process of determining the relative worth of each job is

(1) Job evaluation

(2) Merit rating

(3) Job description

(4) Job specification

(A) (1) only (B) (1) and (2)

(C) (3) and (4) (D) (2) and (3)

(E) Answer not known

47. What is the primary goal of work-life balance?

(1) Maximize Work Hours

(2) Increase Employee Salary

(3) Reduce stress and improve well-being

(4) Eliminate Personal Life

(A) (1) only (B) (2) only

(C) (4) only (D) (3) only

(E) Answer not known

48. Which test measures the candidates job knowledge, skill and capacity to do the job?

(1) Aptitude test

(2) Personality test

(3) Ability test

(4) Achievement test

(A) (1) and (2) (B) (2) and (3)

(C) (3) and (4) (D) (3) only

(E) Answer not known

49. Which of the following affects the choice of financial instrument?

(1) Cash flow position

(2) Control

(3) Cost of capital

(4) All of the above

(A) (1) and (2) only (B) (2) and (3) only

(C) (3) only (D) (4) only

(E) Answer not known

50. If you invest Rs. 100 today at 10% interest, how much will you have after one year?

(1) Rs. 100

(2) Rs. 105

(3) Rs. 110

(4) Rs. 120

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

51. Match the following :

(a)	Equity shares	1.	Convertible into shares
(b)	Preference shares	2.	Fixed interest, tax deductible
(c)	Debentures	3.	Residual owner, voting rights
(d)	Convertibles	4.	Fixed dividend, prior claim over equity

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

(E) Answer not known

52. A child who has not completed his _____ years shall not be allowed or required to work in any factory.

(A) 14th
(B) 15th
(C) 16th
(D) 18th
(E) Answer not known

53. The Factories Act, 1948 primarily aim at

(A) Regulating industrial disputes
(B) Promoting export trade
(C) Ensuring health and safety to workers
(D) Controlling corporate taxation
(E) Answer not known

54. Choose the right answer among type :

SWOT analysis intended to match the firms posed by the environment its

(i) Strengths and weaknesses
(ii) Total efficiency and effectiveness
(iii) Opportunities and threats
(iv) Worth by reducing costs and Rethinking

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

55. In _____ method, decision maker determines possible solutions and the assumptions they are based on, considers the opposite of all of the assumptions, and then develops counter solutions based on the negative assumptions

(A) Problem recognition
(B) Dialectical inquiry
(C) Problem and opportunity finding
(D) Decision enquiry
(E) Answer not known

56. Reason and Assertion type :

Assertion [A] : The laissez-fair style of leadership depends on the leader to provide external motivation.

Reason [R] : The leader principally assumes the role of group member and supply materials when asked.

(A) [A] and [R] are true and [R] is the correct explanation of [A]

(B) [A] and [R] are true but [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

57. The individual responsible for all functional activities in a company may primarily focus on the organisation part, and oversees a complex units on _____

(A) Framing of policy

(B) Implementation of policy

(C) Policy making and planning

(D) Controlling

(E) Answer not known

58. Choose the wrong matches type which of the following is not correctly paired?

(1) BCG – Boston Consulting Group

(2) BPO – Business Process Outsourcing

(3) BPL – Below Poverty Litigants

(4) BOP – Bottom of Pyramid

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

59. Match following :

(a)	Enhanced access to products and service	1.	Innovative solutions
(b)	Providing better service than the competitors	2.	Experience based competition
(c)	Customer pays more for the service provided	3.	Switch channels of distribution
(d)	Route to shake the market leader and take away from the prime over advantage	4.	Service based competition

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

(E) Answer not known

60. Assertion [A] : The innovative developments do not provide sustainable competitive advantage, eventhough the developments are important to the consumer.

Reason [R] : The other manufacturers soon catch up the innovative firm, bring new customers who have stayed away from its use.

(A) [A] and [R] are right but [R] is wrong explanation

(B) [A] and [R] are right and [R] is correct explanation

(C) [A] is right and [R] is wrong

(D) [R] is right and [A] is not correct assertion

(E) Answer not known

61. The Indirect Least Square Method involves :

(A) Applying OLS directly to structural equation

(B) Applying OLS to reduced form equations and then solving to obtain structural parameters

(C) Using instrumental variables in single step

(D) Maximizing a likelihood function for the whole system

(E) Answer not known

62. Indirect Least Square Method is used to estimate the parameters of :

(A) Over identified equation

(B) Exactly identified equation

(C) Under identified equation

(D) Non-linear equation

(E) Answer not known

63. The Dickey-Fuller (DF) test is used to determine :

(i) If a series has a unit root

(ii) If a series is stationary

(iii) If there is a heteroscedasticity in the model

(iv) If there is autocorrelation in the model

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

64. The identification step in Box-Jenkins methodology primarily uses which of the following?

(i) The t test

(ii) Durbin Watson d statistics

(iii) Autocorrelation function

(iv) Partial Autocorrelation function

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

65. If an ARMA (1, 1) model contains which of the following?

(i) One autoregressive term

(ii) One moving average term

(iii) One autoregressive term and a differencing term

(iv) One autoregressive term and a moving average term

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

66. Dummy variables are used in regression analysis to represent :

(i) Qualitative variables like gender or region

(ii) Categorical variable

(iii) Classification of data into subgroups

(iv) Continuous quantitative variables

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

67. When the response variable is unordered with more than two categories the researcher may use

(A) Ordinal logit and probit models
(B) Multinomial logit and probit models
(C) Bivariate logit and probit models
(D) Tobit model
(E) Answer not known

68. The probit model is characterised by

(i) Non-linear S-shaped probability curve

(ii) Cumulative normal distribution function

(iii) Linear probability function

(iv) Probability bounded between 0 and 1

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

69. The method used to detect autocorrelation when ρ is not known

(i) The Runs Test

(ii) Durbin-Watson d test

(iii) Spearman rank correlation test

(iv) Breusch-Pagan-Godfrey test

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

70. Heteroscedasticity is more likely to be a problem while dealing with

(A) Cross section data
(B) Time series data
(C) Pooled data
(D) Panel data
(E) Answer not known

71. The existence of a perfect linear relationship among the explanatory variables of a regression model is known as

(A) Homoscedasticity
(B) Multicolliniarity
(C) Auto correlation
(D) BLUE
(E) Answer not known

72. If the number of observations n is less than the number of parameters to be estimated OLS results in

(A) Inability to estimate parameter
(B) Minimum variance
(C) Perfect goodness of fit
(D) Unbiased estimates
(E) Answer not known

73. The slope coefficient in the Lin-Log regression model gives

(A) Relative change in Y for an absolute change in X
(B) Percentage change in Y for a given percentage change in X
(C) Absolute change in Y for a percentage change in X
(D) By how many units Y changes for a unit change in X
(E) Answer not known

74. In a Lin-Log regression model such as $Y = \beta_1 + \beta_2 \ln(X_i) + u_i$ the slope coefficient β_2 gives

(A) The absolute change in Y for a relative change in X
(B) The relative change in Y for an absolute change in X
(C) The percentage change in Y for a given percentage change in X
(D) The units of changes in Y for a unit change in X
(E) Answer not known

75. The Homoscedasticity assumption of the Classical Linear Regression Model (CLRM) assumes

(A) Constant variance of the error term
(B) Varying variance of the error term
(C) Constant mean of the error term
(D) Varying standard deviation of the error term
(E) Answer not known

76. Edward Spearman is associated with _____.

(A) Correlation
(B) Regression
(C) Rank correlation
(D) Multiple Regression
(E) Answer not known

77. The variability of Y values around the prediction line is measured by

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

(B) $S_{yx} = \sqrt{\frac{SSR}{n-1}}$

(C) $S_{yx} = \sqrt{\frac{SSE}{n-2}}$

(D) $S_{yx} = \sqrt{\frac{SSR}{n-2}}$

(E) Answer not known

78. If the regression equation is given as $Y_i = \hat{\beta}_1 + \hat{\beta}_2 X_i + \hat{u}_i$ then $\hat{u}_i$ represents

(A) residual component

(B) fixed component

(C) variable component

(D) estimator

(E) Answer not known

79. The variable "temperature" is

(A) Nominal variable

(B) Ordinal variable

(C) Interval scale

(D) Ratio scale

(E) Answer not known

80. The data collected for the same set of companies over a period of time is

(A) Cross-sectional data

(B) Time series data

(C) Pooled data

(D) Panel data

(E) Answer not known

81. Foreign Investment Implementation Authority (FIIA) is established by the Govt. of India to act as a _____.

(A) Single point interface between the investors and Govt.

(B) Formulate the investment policies

(C) Authority to amend the policies as and where required

(D) Authority to restrict the FDI entry

(E) Answer not known

82. Reason and Assertion type :

Assertion [A] : The world Investment Report 2022 shows that the structure of global Foreign Direct Investment (FDI) flows has been affected.

Reason [R] : The structure of global foreign direct investment flows has been affected by pandemic.

(A) [A] and [R] are true

(B) [A] is true but [R] is false

(C) [A] is false but [R] is true

(D) [A] and [R] are false

(E) Answer not known

83. Which of the following statements are true about characteristic features of Mixed Economy?

(i) Co-existence of public & private sectors in the economy

(ii) Substantial investment and access to high level technology with unrestricted operation to profit motive.

(iii) Planning is an essential part of Mixed Economy

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

84. "Inflation is always and everywhere a monetary phenomenon" said by

(A) Don Patinkin and James Tobin
(B) Garrison and Marc Lavoie
(C) Friedman and Anna Schwartz
(D) William Stanley Jelons and Karl Burner
(E) Answer not known

85. Which among the following are the most important quantitative tools of the RBI to control money supply?

(i) Repo Rate (RR)

(ii) Cash Reserve Ratio (CRR)

(iii) Open Market-Operation (OMO)

(iv) None of the above

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

86. Which of the following statement is false?

(A) Bulk imports are sub-divided into three components (i) Petroleum, Crude and Products (ii) Bulk consumption goods and (iii) Other Bulk items

(B) Non-bulk imports are classified into (i) Capital goods (ii) mainly export related items and (iii) others.

(C) Capital goods include fertilizers, non-ferrous metals, metallic ores, iron and steel items.

(D) Imports have been classified into Bulk imports and non-bulk imports.

(E) Answer not known

87. Which of the following statements are true about Fin Tech Developments?

(1) Foster beneficial innovation and competition while managing the risks.

(2) Ensure public money remains fit for the digital world amid rapid advances in private money solutions.

(3) Modernise and end up financial infrastructure to disable competition.

(A) (1) only

(B) (1) and (2) only

(C) (2) and (3) only

(D) (3) only

(E) Answer not known

88. Name the scheme launched for financial inclusion aimed at ensuring every household in India access to formal banking services?

(1) PMJDY

(2) MGNREGA

(3) Ayushman Bharat

(4) Swachh Bharat Mission

(A) (1) only (B) (2) only

(C) (3) only (D) (4) only

(E) Answer not known

89. Which one of the following is not an objectives of fiscal policy?

(A) Economic growth

(B) Economic stability

(C) Regulation of financial institution

(D) Maximisation of employment level

(E) Answer not known

90. Reason and Assertion type :

Assertion [A] : Investment Institutions in India include banking and non-banking financial institutions.

Reason [R] : Banking institutions consist of public sector banks and private sector banks and non-banking institutions consist of public sector banks.

(A) [A] is true but [R] is false

(B) Both [A] and [R] are true

(C) [A] is false but [R] is true

(D) Both [A] and [R] are false

(E) Answer not known

91. The receipts that lead to reduction in the assets or an increase in the liabilities of the Government are called ————————.

(A) Plan Expenditure

(B) Non-Plan Expenditure

(C) Revenue Receipts

(D) Capital Receipts

(E) Answer not known

92. Name the scheme which aims at sanitation and clean environment.

(A) MGNREGA

(B) Swachh Bharat Mission

(C) Ayushman Bharat

(D) None of the above

(E) Answer not known

93. Match the following :

(a)	IT Exports Revenue of India in 2000s	1.	1981
(b)	Indian Infosys Company was set up	2.	1/4
(c)	Elimination of Software Import Duties	3.	1980s
(d)	Tech Coolies	4.	1997

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

(E) Answer not known

94. Which of the following is not developed by the NSSO for unemployment status?

(A) Usual status
(B) Current weekly status
(C) Current Daily status
(D) Current monthly status
(E) Answer not known

95. It is not a technological factor in agriculture

(A) Improved seeds
(B) Fertilizers
(C) Irrigation
(D) Credit facility
(E) Answer not known

96. Which of the following is not performed by the National Commission for Minorities

(i) Evaluation of the progress of the development of minorities under the Union and States

(ii) Suggesting appropriate measures in respect of any minority to be undertaken by the Central Government or the State Governments

(iii) Financial distribution to General education policies of the State Government

(iv) Conducting studies, research on the issues relating to socio - economic and educations of minorities

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

97. Sustainable development is the process of economic development which aims at maintaining the quality of life of ———— generations.

(A) Past and Future
(B) Present
(C) Present and Past
(D) Present and Future
(E) Answer not known

98. The First World Happiness Report was published by Sustainable Development Solution Network (SDSN) and the Global Happiness Council (GHC) on ————.

(A) 01.01.2012
(B) 01.02.2012
(C) 01.03.2012
(D) 01.04.2012
(E) Answer not known

99. Identify whether the following statements regarding Gross Value Added (GVA) are True.

(i) The concept of GVA at basic prices follows from the UN's System of National Accounts (SNA) introduced in 1993.

(ii) GVA captures what acrues to the producer, before a product is sold.

(iii) GVA is the value of output including intermediate consumption.

(iv) GVA at basic price is arrived at by adding product subsidies and subtracting product taxes from GDP at basic prices.

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

100. How do you mention the National Income in technical sense?

(A) Net National product at variable cost
(B) Net National product at production cost
(C) Net National product at demand cost
(D) Net National product at factor cost
(E) Answer not known

101. If economic conditions of people living in a state are to be studied, a few towns and villages may be purposively selected for intensive study is under

(A) Simple random sampling
(B) Systematic random sampling
(C) Stratified random sampling
(D) Non-Probability sampling
(E) Answer not known

102. Sampling errors can be reduced by ————————.

(A) Improving the compiling techniques
(B) Improving the collection techniques
(C) Reducing the sample size
(D) Increasing the sample size
(E) Answer not known

103. Which of the following is true about secondary data?

(i) A study based on historical data
(ii) A study based on the patient status in a hospital
(iii) A study based on the effect or impact of any Government policy

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

104. Which of the following statements are true about the qualities of good research.

(i) Good research is systematic

(ii) Good research is logical

(iii) Good research is empirical

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

105. A master plan specifying the methods and procedures for collecting and analysing the needed information is called

(A) Research design
(B) Research objectives
(C) Pilot studies
(D) Problem Definition
(E) Answer not known

106. Choose the right matches among distinct phases of operation of research tool of economy policy.

(1) Investigation of economic structure

(2) Diagnosis of Event and analysis of the force

(3) The prognosis

(A) (1) and (2) are correct
(B) (1) and (3) are correct
(C) (2) and (3) are correct
(D) All the three are correct
(E) Answer not known

107. APA style is mainly used in ————————.

(A) Social Sciences
(B) Engineering
(C) Agriculture
(D) Mathematics
(E) Answer not known

108. Which of the following are true about report?

(i) The research report should convey precise information shorn of multiplicity of meaning and ambiguity

(ii) Statistical formula and computations are presented

(iii) It should be presented such that the reader can understand

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

109. In sample survey, informations are collected through ————————.

(A) Interview or questionnaire
(B) Observation or readings from experiments
(C) Schedules or reports
(D) Reports or experiments
(E) Answer not known

110. Studies related to behavioural sciences data collected using ———— method.

(A) Questionnaire method
(B) Readings from experiments
(C) Observation method
(D) Interview method
(E) Answer not known

111. Match the following :

(a)	Personal Interviews	1.	To confine the respondent to a discussion of issues with which he seeks conservance
(b)	Focussed Interview	2.	To encourage the respondent to talk about the given topic
(c)	Clinical Interview	3.	Direct personal Investigation
(d)	Non-directive interview	4.	Motivations or with the course of Individual's life experience

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

(E) Answer not known

112. Which of the following is included in the formal experimental design?

(i) Completely Randomized design

(ii) Randomized Block design

(iii) Expost facto design

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

113. Which of the following is characteristics of Action Research?

(i) Situational

(ii) Collaborative

(iii) Participatory

(iv) Self-evaluative

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

114. Which of the following is help to identify the research design on a small scale before going to the field?

(A) Embedded survey
(B) Pilot survey
(C) Link survey
(D) QR survey
(E) Answer not known

115. Dichotomous and multiple choice questions are under the category of _____.

(A) structured question
(B) unstructured question
(C) open-ended question
(D) unstructured and open-ended question
(E) Answer not known

116. Which one of the following is used to take a decision at the designing stage of the questionnaire?

(A) Editing
(B) Coding
(C) Data cleaning
(D) Classification
(E) Answer not known

117. Which of the following footnotes used for the abbreviations "and others" in report writing?

(A) ea.et.,
(B) et.al.,
(C) et.,l.,
(D) ea.,al.,
(E) Answer not known

118. If the raw data is transformed into symbols like numeral and it may tabulated and counted, then the process is called as _____

(A) Editing data
(B) Coding data
(C) Assigning data
(D) Analysing data
(E) Answer not known

119. The level of significance in the Type I error level $\alpha = 0.01$ is used for measuring

(A) Moderate precision
(B) Low precision
(C) Average precision
(D) High precision
(E) Answer not known

120. A level of significance represents

(A) Probability of committing Type I error
(B) Probability of committing Type II error
(C) Probability of committing power of the test
(D) Probability of committing both Type I and Type II error
(E) Answer not known

121. Technical and mathematical relationship between inputs and outputs is called

(A) Production function
(B) Utility function
(C) Demand function
(D) Consumption function
(E) Answer not known

122. Cost functions are derivative of

(A) Production function
(B) Demand function
(C) Supply function
(D) Utility function
(E) Answer not known

123. Cost of production is primarily derived from

(A) Total cost
(B) Cost C_1
(C) Cost C_2
(D) Cost C_3
(E) Answer not known

124. To calculate Green GDP, cost of pollution is _____ from / to real GDP.

(A) Added
(B) Subtracted
(C) Derived
(D) Multiplied
(E) Answer not known

125. The following authoritative body responsible for approving minimum support price

(A) Commission for Agricultural costs and prices
(B) Cabinet committee on Economic affairs
(C) Food Corporation of India
(D) Ministry of Agriculture and farmers' welfare
(E) Answer not known

126. Commission for Agricultural Costs and Prices (CACP) was set up in

(A) 1965
(B) 1985
(C) 1995
(D) 1975
(E) Answer not known

127. The output per unit of labour barely sufficient for survival is called

(A) Optimum population
(B) Optimum labour force
(C) Malthusian margin
(D) Per capita output
(E) Answer not known

128. Which of the following is an assumption of Coase theorem?

(i) There are no transaction costs
(ii) The assignment of property rights is not clear
(iii) Bargaining between polluter and victim results in optimum control of externality
(iv) Final outcome is invariant to initial property rights

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

129. Arrange the following events in chronological order

(1) The Water (Prevention and control of Pollution) Act
(2) The Air (Prevention and control of Pollution) Act
(3) The National Environment Tribunal Act
(4) The Environment (Protection) Act

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

130. Match the following :

(a)	Collective action	1.	Common Property Resources (CPRs)
(b)	'Tragedy of Commons'	2.	Common Property Resources (CPR) Institution
(c)	Common grazing lands	3.	Prof. Elinor Ostrom
(d)	Joint Forest Management (JFM)	4.	Prof. Garrett Hardin

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

(E) Answer not known

131. Which of the following are characteristic features of Monopoly Market?

(i) There is single seller of a commodity

(ii) There exists no close substitutes for the product

(iii) He can decide on the output to sell

(iv) He cannot fix the price for the product

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

132. In perfectly competitive markets, the products are

(A) Heterogenous
(B) Differentiated
(C) Homogenous
(D) Complementary
(E) Answer not known

133. Vertical integration of market occurs when

(A) A firm gains control over other firms performing similar marketing functions
(B) A firm performs more than one marketing function
(C) A firm's activities are not directly related to each other
(D) Large number of firms compete with each other
(E) Answer not known

134. One of the following measures is the correcting disequilibrium of balance of payments

(A) Trade cycles
(B) Export demand
(C) Import quotas
(D) Huge borrowings
(E) Answer not known

135. Classical theory of absolute advantage was advocated by

(A) Adam Smith
(B) David Ricardo
(C) Alfred Marshall
(D) Taussig
(E) Answer not known

136. Assumption of comparative advantage trade theory

(A) There are more than 2 countries
(B) There are more than 2 commodities
(C) Labour is the only factor of production
(D) Supply of labour is continuously changing
(E) Answer not known

137. The NABARD was set up on

(A) July 12, 1982
(B) May 30, 1983
(C) June 15, 1982
(D) August 20, 1984
(E) Answer not known

138. The process of finding present value of a future money is called

(A) Trading
(B) Compounding
(C) Discounting
(D) Promoting
(E) Answer not known

139. The excess of production over the break-even point is called _____

(A) Shut down point
(B) Contribution margin
(C) Margin of safety
(D) Contribution ratio
(E) Answer not known

140. The percentage change in quantity supplied is more than the corresponding percentage change in price is known as

(A) Inelastic supply
(B) Perfectly inelastic supply
(C) Elastic supply
(D) Perfectly elastic supply
(E) Answer not known

141. Arranging the event type

1. Conception phase
2. Definition phase
3. Project clean-up phase
4. Planning and organizing phase
5. Implementation phase

(A) 1, 2, 4, 5, 3
(B) 1, 2, 3, 4, 5
(C) 5, 4, 3, 2, 1
(D) 2, 1, 4, 5, 3
(E) Answer not known

142. Statement A : The main purpose of MDG is improvement of Human Development outcome in developing countries.

Statement B : The main purpose of SDG is global and universally applicable.

(A) Statement A and B both are correct
(B) Statement A and B both are incorrect
(C) Statement A is correct but B is incorrect
(D) Statement B is correct but A is incorrect
(E) Answer not known

143. Logical framework technique is a _____

(A) A project planning technique
(B) A project evaluation technique
(C) A project monitoring technique
(D) A project management framework
(E) Answer not known

144. National policy for older persons was approved by the cabinet in the year _____

(A) 1999
(B) 1998
(C) 2000
(D) 1997
(E) Answer not known

145. Match the following :

(a)	Mild mental retardation	1.	IQ 50-70
(b)	Moderate mental retardation	2.	IQ 35-49
(c)	Severe mental retardation	3.	IQ 20-34
(d)	Profound mental retardation	4.	Under 20

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

(E) Answer not known

146. Statement A : The Nal Jal Yojana is also known as Jal Jeevan Mission.

Statement B : Provision of tap water atleast 55 litres per person per day

(A) Statement A is correct and statement B is the correct explanation of statement A

(B) Statement A is correct but Statement B is not the correct explanation of statement A

(C) Statement A is not correct but statement B is the correct explanation of statement A

(D) Statement A and B both are incorrect

(E) Answer not known

147. Match the following :

(a)	Ujjwala scheme	1.	Child trafficking
(b)	INSPIRE	2.	Violence against children
(c)	Kishori Shakthi Yojana	3.	Adolescent girls
(d)	IGMSY	4.	Pregnant and lactating mother

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

(E) Answer not known

148. Match the following :

(a)	1909	1.	Beginning of school health service in India
(b)	1946	2.	Bhore committee reported that school health services were inadequate
(c)	1953	3.	Secondary education committee emphasised the need for medical examination of pupils
(d)	1960	4.	Government of India constituted a school health committee

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

(E) Answer not known

149. In the year _____, the first school of social work in India was established in _____.

(A) 1936, Delhi
(B) 1936, Bombay
(C) 1926, Calcutta
(D) 1936, Madras
(E) Answer not known

150. Match the following :

(a)	Care giver	1.	assist the individuals and groups in their problems and programmes
(b)	Consultant	2.	promote change in a therapeutic way
(c)	Referral agent	3.	helps people to reach the services they need
(d)	Broker	4.	use the services available in other agencies

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

(E) Answer not known

151. Trial and error is the technique of _____ design of social work research.

(A) Explorative
(B) Experimental
(C) Descriptive
(D) Diagnostic
(E) Answer not known

152. Which of the following best describes the nature of applied research?

(A) It is free to pickup a problem
(B) It is aimed at finding a solution for an immediate problem
(C) It is a basic research
(D) It is an operational research
(E) Answer not known

153. _____ method involves the minute study of all the information and data collected regarding the object or case under study.

(A) Social Microscope
(B) Social Macroscope
(C) Large scale study
(D) Big data analysis
(E) Answer not known

154. The 'Continuous production in a factory' is the best example of

(A) Finite population
(B) Infinite population
(C) Existent population
(D) Hypothetical population
(E) Answer not known

155. Which among the following is a part of scientific method that provide different stages in research process which is called as _____?

(A) Focus group discussion
(B) Case study method
(C) Phenomenological study
(D) Research design
(E) Answer not known

156. Who defined the sociology of knowledge "as a theory of the social or existential conditioning of thought"?

(A) Karl Mannheim
(B) Karl Marx
(C) Auguste Comte
(D) George Simmel
(E) Answer not known

157. Assertion [A] : According to Pareto all concepts must be defined in terms of observed or observable facts.

Reason [R] : They must correspond to realities.

(A) [A] is correct but [R] is wrong
(B) Both [A] and [R] are correct, and [R] is the correct explanation of [A]
(C) [A] is wrong [R] is correct
(D) Both [A] and [R] are correct, but [R] is not the correct explanation of [A]
(E) Answer not known

158. According to Simmel, 'The classification and analysis of forms of sociation, to which we will return later' is known as?

(A) General Sociology
(B) Philosophical Sociology
(C) Psychological Sociology
(D) Formal Sociology
(E) Answer not known

159. According to Spencer, what is a key difference between a biological organism and social organism

(A) Societies do not grow in size

(B) Biological organisms are not interdependent

(C) Only biological organisms develop from simple to complex

(D) In society, consciousness is diffused, not concentrated

(E) Answer not known

160. The "Three stages of Society" (Theological, metaphysical, positive) theory was proposed to explain the development of human thought by whom?

(A) Herbert Spencer

(B) Karl Popper

(C) Saint – Simon

(D) Auguste Comte

(E) Answer not known

161. Which one of the following function is no where differentiable?

(A) $f(z)=z^3$

(B) $f(z)=|z|$

(C) $f(z)=\sin x\cos hy+i\cos x\sin hy$

(D) $f(z)=e^z$

(E) Answer not known

162. If a power series $\sum a_n z^n$ has radius of convergence R and if $0 \leq \rho < R$ then which of the following statement is false

(A) The series converges absolutely for every z with $|z| < R$

(B) The convergence is not uniform for $|z| \leq \rho$

(C) The series is unbounded in $|z| > R$

(D) The series is analytic in $|z| < R$

(E) Answer not known

163. Which of the following statements is/are true?

(i) Measure of a rectangle $R(a < x < b, c < y < d)$ is $m(R) = (b-a)(d-c)$

(ii) Measure of a parallelopiped $P(a \leq x \leq b, c \leq y \leq d, l \leq z \leq m)$ $m(P) = (b-a)(d-c)(m-l)$

(iii) Lebesgue exterior measure is $m_e(A) = \inf\{M(G) : G \supset A, G$ is open$\}$

(iv) Lebesgue interior measure is $m_i(A) = \sup\{M(F) : F$ is closed, $F \subset A\}$

(A) (i) only

(B) (ii) and (iii) only

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

(D) (i), (ii), (iii) and (iv)

(E) Answer not known

164. Assertion [A] : Suppose S, T and ST are densely defined operators in a Hilbert space H. Then $T^* S^* \subset (ST)^*$ Also $S \in \mathfrak{B}(H)$.

Reason [R] : $T^* S^* = (ST)^*$.

(A) [A] is true but [R] is false

(B) Both [A] and [R] are true, and [R] is the correct explanation of [A]

(C) [A] is false, [R] is true

(D) Both [A] and [R] are true; [R] is not the correct explanation of [A] is correct

(E) Answer not known

165. Assertion [A] : Banach spaces gives the study about length of a vector. The geometrical concept missing is angle between the two vectors.

Reason [R] : The theory of Hilbert spaces is study about the angle between two vectors.

(A) [A] is true [R] is false

(B) [A] is false [R] is true

(C) Both [A] and [R] are true, but [R] is not the correct explanation for [A]

(D) Both [A] and [R] are false

(E) Answer not known

166. Assertion [A] : If S is a topological space and S is either (a) a complete metric space, or (b) a locally compact Hausdorff space then the union of every countable collection of dense open subsets of S is dense in S where $E \subset S$.

Reason [R] : If $\{E_i\}$ is a countable collection of nowhere dense subsets of S and if V_i is the complement of $\overline{E}_i$ then each V_i is dense and $\bigcap V_i \neq \phi$. Hence $S \neq \bigcup E_i$.

(A) [A] is true but [R] is false

(B) Both [A] and [R] are true; and [R] is the correct explanation of [A]

(C) [A] is false, [R] is true

(D) [A] and [R] are false

(E) Answer not known

167. If f and g are each of bounded variation on $[a,b]$. Then f/g is also of bounded variation if _____

(A) g is bounded away from zero

(B) f is bounded away from zero

(C) f is not bounded away from zero

(D) g is not bounded away from zero

(E) Answer not known

168. If f is strictly increasing and continuous on a compact interval $[a,b]$, then which of the following statements are true.

(i) f^{-1} is exists

(ii) f^{-1} is strictly increasing on $[f(a), f(b)]$

(iii) f^{-1} is strictly decreasing on $(f(a), f(b))$

(iv) f^{-1} is continuous

(v) f^{-1} is bounded

(vi) f^{-1} doesn't exist

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

169. As per Abel's test, the necessary conditions for a series $\sum a_n b_n$ to be convergent are

(i) $\sum a_n$ converges

(ii) $\{b_n\}$ is a montonic convergent sequence

(iii) The partial sum of $\sum a_n$ form a bounded sequence

(iv) $\sum b_n$ is a decreasing sequence which converges to 0

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

170. If Y is the set of non zero real numbers with the subspace topology of the real line $\mathbb{R}$ with the usual topology, then Y is _____

(A) Connected
(B) Disconnected
(C) Compact
(D) Both Connected & Compact
(E) Answer not known

171. Let C_{00} consists of all sequence in l_∞, having finite non zero terms. Let (x_n) be a sequence in C_{00}, where $x_n = \left(1, \frac{1}{2}, \frac{1}{3}, ..., \frac{1}{n}, 0, 0\right)$ then (x_n) the Cauchy sequence

(A) Can't be determined in C_{00}
(B) Oscilating in C_{00}
(C) Does not converge in C_{00}
(D) Converge in C_{00}
(E) Answer not known

172. If S and T are subsets of a vector space V, then which one of the following is FALSE?

NOTATION : $L(X) \rightarrow$ Linear span of X

(A) $L(S \cap T) = L(S) \cap L(T)$
(B) $S \subset T \Rightarrow L(S) \subset L(T)$
(C) $L(S \cup T) = L(S) + L(T)$
(D) $L(L(S)) = L(S)$
(E) Answer not known

173. Which of the following set of vectors in $\mathbb{R}^3$ are linearly dependent?

(i) $\{(1, 0,0), (0,1, 0), (0, 0, 1)\}$

(ii) $\{(1, 2,3), (2,4, 6), (3, 6, 9)\}$

(iii) $\{(1, 1,0), (0,1, 1), (1, 0, 1)\}$

(iv) $\{(1, 2,3), (4,5, 6), (7, 8, 9)\}$

(A) (i) and (ii) only

(B) (ii) and (iii) only

(C) (iii) and (iv) only

(D) (ii) and (iv) only

(E) Answer not known

174. Arrange in chronological order :

Let $T : V \to V$ be a Homomorphism. Then to prove $Ker(T)$ is a subspace of V.

1. Show that $0 \in KerT$
2. Show that $T(u+v) = 0$
3. Show that $T(cu) = 0$
4. Let $u, v \in KerT$
5. Closed under addition and scalar multiplication – Conclude

(A) $1 \to 4 \to 2 \to 3 \to 5$

(B) $4 \to 1 \to 2 \to 3 \to 5$

(C) $1 \to 2 \to 3 \to 4 \to 5$

(D) $4 \to 5 \to 1 \to 2 \to 3$

(E) Answer not known

175. Solution $\frac{\partial^2 z}{\partial x^2} - \frac{\partial^2 z}{\partial y^2} = x - y$

(A) $z = \frac{1}{4}x(x-y)^2 - x\phi_1(x+y) - y\phi_2(x-y)$

(B) $z = \frac{1}{4}x(x-y)^2 + \phi_1(x+y) - \phi_2(x-y)$

(C) $z = \frac{1}{4}x(x-y)^2 + \phi_1(x+y) + \phi_2(x-y)$

(D) $z = \frac{1}{4}x(x-y) + \phi_1(x+y) + \phi_2(x-y)$

(E) Answer not known

176. The indicial polynomial for the Euler equation $L(y) = x^n y^{(n)} + a_1 x^{n-1} y^{(n-1)} + \ldots + a_n y = 0$ is

(A) $q(r) = r(r+1)\ldots(r+n+1) + a_1 r(r+1)\ldots(r-n+2) + \ldots + a_n$

(B) $q(r) = r(r-1)\ldots(r-n+1) + a_1 r(r-1)\ldots(r-n+2) + \ldots + a_n$

(C) $q(r) = r(r-1)\ldots(r-n+1) - a_1 r(r-1)\ldots(r-n+2) - \ldots - a_n$

(D) $q(r) = (r-1)\ldots(r-n-1) + a_1 r(r-1)\ldots(r-n-2) + \ldots + r a_n$

(E) Answer not known

177. The set z_p (integers mod p) is a field if and only if

(A) p is even

(B) p is composite

(C) p is prime

(D) $p > 0$

(E) Answer not known

178. Choose the correct statements :

(i) A ring R has no zero divisors if and only if cancellation laws hold in R

(ii) the set I of all integers forms a ring with respect to ordinary addition and ordinary multiplication

(iii) The set αI of all integers forms a ring with respect to ordinary addition and ordinary multiplication

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

179. Let G be the group of all real 2×2 matrices $\begin{pmatrix} a & b \\ 0 & d \end{pmatrix}$ with $ad \neq 0$ under matrix multiplication and let $K = \left\{ \begin{pmatrix} 1 & b \\ 0 & 1 \end{pmatrix} \right\}$. Then K is

(A) Not a sub group of G which is abelian
(B) Non-abelian group
(C) Normal subgroup of G
(D) Quotient group of G
(E) Answer not known

180. Among the following statements, choose the incorrect one

(i) If U is an ideal of a ring R and $1 \in U$, then $U = R$

(ii) If F is a field, then its only ideals are {0} and F itself

(iii) Every integral domain is a field

(iv) If p is a prime number then J_p, the ring of integers mod p, is a field

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

181. Two students X and Y work independently to solve a problem. The probability that X will solve it is 3/4 and the probability that Y will solve it is 2/3. Then the probability that the problem will be solved is

(A) 17/12
(B) 6/12
(C) 11/12
(D) 1/12
(E) Answer not known

182. With usual notations, In SRSWOR the variance of the sample mean is

(A) $\text{var}(\bar{y}_n) = S^2 . \left(\frac{N-n}{N^2} \right)$
(B) $\text{var}(\bar{y}_n) = NS^2 . \left(\frac{N-n}{n} \right)$
(C) $\text{var}(\bar{y}_n) = N^2 S^2 . \left(\frac{N}{n} \right)$
(D) $\text{var}(\bar{y}_n) = \frac{S^2}{n} . \left(\frac{N-n}{N} \right)$
(E) Answer not known

183. In Simple Random Sampling, WOR, of 'n' clusters each containing M elements from a population of N clusters, ρ is the intracluster correlation coefficient and if the sample mean $\bar{y}_n$ is an unbiased estimator of $\bar{y}$ then its variance is

(A) $\cong \frac{(1-f)}{n} S_m^2 [1+(M+1)\rho]$

(B) $\cong \frac{(1-f)}{n} [1+(M-1)\rho]$

(C) $\cong \frac{(1-f)}{n} S_m^2 [1+(M-1)\rho]$

(D) $\cong \frac{1}{n} S_m^2 [1+(M-1)\rho]$

(E) Answer not known

184. The variance of 5 values is 16. If each value is doubled, find the variance of new set

(A) 32

(B) 16

(C) 8

(D) 64

(E) Answer not known

185. If every value in a dataset is multiplied by a constant K, the new variance will be

(A) K × original variance

(B) $K^2 \times$ original variance

(C) $\sqrt{K} \times$ original variance

(D) Unchanged

(E) Answer not known

186. Identify the correct statements of three dimensional diagrams

(1) It is termed as volume diagram

(2) It is used when the difference between smallest value and largest value is very large

(3) It is often easy for eye to read precisely

(A) (3) and (2) are true
(B) (1) and (3) are true
(C) (1), (2) and (3) are true
(D) (1) and (2) are true
(E) Answer not known

187. When class intervals are unequal in a histogram, the height of the bar is determined by _____

(A) Cumulative frequency
(B) Frequency
(C) Frequency density
(D) Relative frequency
(E) Answer not known

188. Let $x_i\,(i=1,2,...k)$ be independent r v's with Binomial distribution $x_i \sim B(n_i, p)$ then $\sum_{i=1}^{k} x_i$ has _____ distribution

(A) $B(n,p)$
(B) $B(nk,p)$
(C) $B(\Sigma n_i, p)$
(D) $B(\Sigma n_i, np)$
(E) Answer not known

189. The mean of a binomial distribution is 20 and variance is 16. Find n.

(A) 50
(B) 100
(C) 80
(D) 10
(E) Answer not known

190. Let X and Y be two independent continuous random variables. Then the p.d.f. of their product $U=xy$ is given by $g(u)=$

(A) $\int_{-\infty}^{\infty} f_{xy}\left(x,\frac{u}{x}\right)\frac{dx}{|x|}$ (B) $\int_{-\infty}^{\infty} f_{xy}\left(x,\frac{u}{x}\right)\frac{dx}{x}$

(C) $\int_{-\infty}^{\infty} f_{xy}\left(x,\frac{u}{x}\right)\frac{dx}{|u|}$ (D) $\int_{-\infty}^{\infty} f_{xy}\left(x,\frac{u}{x}\right)\frac{du}{|u|}$

(E) Answer not known

191. A $\{x_n\}_{n>1}$ of random variable is said to obey Strong Law of Large Numbers (SLLN) if $\frac{S_n-E(S_n)}{n}$ _____

(A) Converges a.s to 0 as $n\to\infty$

(B) Converges in prob. to 0 as $n\to\infty$

(C) Converges a.s to 1 as $n\to\infty$

(D) Converges in prob. to 1 as $n\to\infty$

(E) Answer not known

192. If $E|X_n|^r \to 0$, then for what value of r, $X_n \xrightarrow{P} 0$

(A) $r\le 1$ (B) $r\ge 1$

(C) $r<1$ (D) $r>1$

(E) Answer not known

193. Assertion [A] : Chi-square test is a Nonparametric test.

Reason [R] : Chi-square test does not make any assumptions regarding the parent population from which the observations are taken.

(A) Both [A] and [R] are true and [R] is the correct explanation of [A]

(B) Both [A] and [R] are true but [R] is not correct explanation of [A]

(C) [A] is true but [R] is false

(D) [A] is false but [R] is true

(E) Answer not known

194. If C denotes a subset of the sample space. Then we say that C is a best critical region of size α for testing $H_0:\theta=\theta'$ against $H_1:\theta=\theta''$ for $p_{\theta'}[x\in C]=\alpha$ and for every subset A of the sample space, $p_{\theta'}[x\in A]=\alpha$ if

(A) $p_{\theta''}[x\in C]\geq p_{\theta''}[x\in A]$

(B) $p_{\theta'}[x\in C]\geq p_{\theta'}[x\in A]$

(C) $p_{\theta'}[x\in C]<p_{\theta'}[x\in A]$

(D) $p_{\theta''}[x\in C]<p_{\theta''}[x\in A]$

(E) Answer not known

195. Which one of the following is not an assumption for one way ANOVA

(A) All the observations y_{ij}'s are independent and $y_{ij}\sim N(\mu_i,{\sigma_e}^2)$

(B) Different effects are additive in nature

(C) ε_{ij} are iid $N(0,{\sigma_0}^2)$

(D) Treatment effects are multiplicative in nature

(E) Answer not known

196. The number of F-test in two-way ANOVA with interaction is _____

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

197. If a negative value appears in the solution values (x_B) column of the simplex method, then

(A) The basic solution is optimum
(B) The basic solution is infeasible
(C) The basic solution is unbounded
(D) The basic solution is degenerate
(E) Answer not known

198. In an assignment problem, the maximization problem may be converted as a minimization type by

(A) Adding a constant to every element of the cost matrix
(B) Subtracting a constant from every element of the cost matrix
(C) Multiplying a constant to every element of the cost matrix
(D) Divide the every element of cost matrix by a constant
(E) Answer not known

199. If criteria are written in different rows of the criteria range, excel interprets them as

(A) AND condition
(B) OR condition
(C) Nested condition
(D) Conditional formatting
(E) Answer not known

200. What is the output of = "Part-"&"23A" in MS Excel

(A) Part 23A

(B) Part-23A

(C) = Part-&23A

(D) ="Part-"&"23A"

(E) Answer not known
