Combined Technical Services Examination

(NON – INTERVIEW POSTS)

COMPUTER BASED TEST

DATE OF EXAM : 08.09.2026 A.N.

PAPER – II : TOWN PLANNING, CIVIL ENGINEERING AND ARCHITECTURE (DEGREE STD.),

SUB. CODE : 560

1. In transportation planning while analysing trip distribution identify the oldest of the growth factor method which assumes that the growth rate for the whole area is valid for predicting future inter-zonal trips, from the following

(A) uniform (constant) factor method
(B) furness method
(C) tanner method
(D) gravity method
(E) Answer not known

2. In conventional four step transport model, the purpose of _____ is to determine the level of aggregate demand for trips originating in, and attracted to, each study zone.

(A) Trip generation
(B) Trip assignment
(C) Trip distribution
(D) Trip attraction
(E) Answer not known

3. In transportation planning, in trip distribution methods, according to _____ method the total trips for each zone are distributed to the interzonal movements as a first approximation according to the relative attractiveness of each movement.

(A) Fratar method
(B) Furness method
(C) Tanner model
(D) Fractal method
(E) Answer not known

4. In transportation planning, while developing the trip distribution models, identify the models which employ growth factor methods from the following.

(i) Uniform factor method

(ii) Fratar method

(iii) Furness method

(iv) Tanner model

(A) (i), (ii), (iii)

(B) (i) and (iv)

(C) (ii) and (iv)

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

(E) Answer not known

5. Identify the project which is at a macro level scale of planning region.

(A) River basin and irrigation system

(B) Rayalaseema area

(C) Chambal ravines

(D) Train tracking

(E) Answer not known

6. Which of the following pair is correct?

(1) CSO – Central Statistical Organisation

(2) MoSPI – Ministry of Statistics and Project Implementation

(3) DSO – Department Statistical Office

(A) Only (1) is correct

(B) (1) and (2) are correct

(C) (2) and (3) are correct

(D) (1) and (3) are correct

(E) Answer not known

7. Which of the following pair are correct?

(1) Nominal scale – Provides Yardstick for measuring

(2) Interval scale – 'Yes' or 'No'

(3) Ordinal scale – Prioritises the choises given

(A) (1) only correct

(B) (2) and (3) are correct

(C) (3) only correct

(D) (1) and (3) are correct

(E) Answer not known

8. Which of the following statement is correct as per cluster method?

(1) Grouping together

(2) Superimposing of maps

(3) By developing flexible index

(A) Only (1) is correct

(B) (2) and (3) are correct

(C) (1) and (2) are correct

(D) (1) and (3) are correct

(E) Answer not known

9. Match the following Author with the criterial for the regional classification.

(a)	K.I. Viji	1.	Homogeneity
(b)	Gidabhuly	2.	Industrial development
(c)	Chandrasekara	3.	Economic regionalization
(d)	Sengupta	4.	Energy and Power

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

(E) Answer not known

10. Match the following :

(a)	Developed Region	1.	Backward economics
(b)	Depressed Region	2.	Share in the GDP of the country is relatively higher
(c)	Neutral Region	3.	Island of development around stagnation
(d)	Intermediate Region	4.	New towns

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

(E) Answer not known

11. Arrange the following planning region based on the hierarchy.

(1) State level

(2) Micro level

(3) National level

(4) Macro level

(A) (3), (4), (1), (2)

(B) (4), (3), (2), (1)

(C) (1), (2), (3), (4)

(D) (2), (1), (4), (3)

(E) Answer not known

12. Which of the following is correct?

(1) Homogenous region are formal region on the homogeneity is topography.

(2) Polarized or nodal regions look to a boundary of town.

(3) Villages nearby are dependent upon nodal region for its service and marketing.

(A) (1) only is correct

(B) (1) and (2) are correct

(C) (2) and (3) are correct

(D) (1) and (3) are correct

(E) Answer not known

13. Which are the expansion are correct?

(1) NUSP – National Urban Sanitation Policy

(2) RAY – Raja Awas Yojana

(3) CFC – Central Finance Commission

(4) CSP – Corporate Sanitation Plan

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

(B) (2) and (3) are correct

(C) (1) and (3) are correct

(D) (2) and (4) are correct

(E) Answer not known

14. Which of the following statement is correct for the people to participate in developing planning process steps?

(1) Determining goals and objectives

(2) Data collection

(3) Design criteria and standards

(4) Plan approval

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

(B) (2) and (3) are correct

(C) (3) and (4) are correct

(D) (1) and (4) are correct

(E) Answer not known

15. Arrange the various stage of planning process.

(1) Plan formulation

(2) Review and Revision of plan

(3) Selection of aims and objectives

(4) Plan modification

(A) (2), (4), (1), (3)

(B) (1), (2), (3), (4)

(C) (4), (3), (2), (1)

(D) (3), (1), (4), (2)

(E) Answer not known

16. Various plans included in urban plan formulation in 2014 are which are not covered in previous guideline

(1) Slum redevelopment plan

(2) City development plan

(3) Regional plan

(4) Master plan

(A) (1) and (2) only

(B) (2) and (3) only

(C) (3) and (4) only

(D) (2) and (4) only

(E) Answer not known

17. Urban development plans formulation and implementation guidelines were prepared in year _____

(A) 1990

(B) 1995

(C) 1996

(D) 2000

(E) Answer not known

18. Which of the following data are required for the preparation of master plan?

(1) Meteorological data

(2) Literacy data

(3) Mineral resources

(4) Gender data

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

(B) (1) and (3) are correct

(C) (2) and (3) are correct

(D) (2) and (4) are correct

(E) Answer not known

19. In smart cities proposal _____ (RDA) founded in 2013 is a collaboration of govt. entities and the global scientific community emphasizing open sharing of data across technologies, disciplines and contributes to address challenge of society.

(A) Research Data Alliance

(B) Research Data Association

(C) Real-Time Data Alliance

(D) Real-Time Digital Alliance

(E) Answer not known

20. Match the following towns :

(a)	Steel towns	1.	For marble and perfumery
(b)	Industrial towns	2.	Chandigarh, Punjab
(c)	Capitals	3.	Jamshedpur, Bihar
(d)	Agra	4.	Bhilai, Madhyapradesh

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

(E) Answer not known

21. The factor of safety against sliding of a cantilever retaining wall is should not be less than _____.

(A) 2.6
(B) 1.8
(C) 1.6
(D) 1.4
(E) Answer not known

22. Gantry Girders are subjected to fatigue effects due to _____ loads.

(A) Concentrated load
(B) Uniform distributed load
(C) Moving loads
(D) Vertical fixed loads
(E) Answer not known

23. If a simple bending takes place about the both the principal planes without torsion the beam is said to undergo _____ bending

(A) Simple bending
(B) Axial bending
(C) Biaxial bending
(D) Buckling
(E) Answer not known

24. The ratio between the height of truss to the span is called _____

(A) spacing of truss
(B) lap distance
(C) pitch of truss
(D) gauge of truss
(E) Answer not known

25. Which type of weld are used to connect the structural members that are in the same plane?

(A) Fillet weld
(B) Groove weld
(C) Slot weld
(D) Plug weld
(E) Answer not known

26. A plate girder has flange plate 440 × 25 mm and quality of steel is Fe 410, and it was found from the beam analysis that this place where a joint has to be provided is subjected to a tension 1150 kN. Find weld capacity assuming effective thickness of the butt-weld as 0.75 T, where T is thickness of plate.

(A) 3.65 kN/mm
(B) 4.25 kN/mm
(C) 2.81 kN/mm
(D) 1.85 kN/mm
(E) Answer not known

27. The failure of under reinforced prestressed concrete beam is preceded by

(A) very few cracks near the center of span
(B) very little deflections
(C) large number of cracks with large deflection
(D) very large deflection
(E) Answer not known

28. The axial force coming on the lacing bars can be computed based on shear - flow subject to a minimum of _____% of axial load.

(A) 5.5%
(B) 3.5%
(C) 2.5%
(D) 4.5%
(E) Answer not known

29. The maximum effective reinforcement ratio of a bonded prestressed concrete beam at failure according to IS : 1343 is limited to a value of

(A) 0.15
(B) 0.40
(C) 0.25
(D) 0.35
(E) Answer not known

30. Uniformly distributed load on a concrete beam can be effectively counter balanced by selecting

(A) concentric cable
(B) eccentric cable
(C) straight cable
(D) parabolic cable
(E) Answer not known

31. For prestressed concrete work the water-cement ratio used is _____.

(A) 0.4 – 0.6
(B) 0.2 – 0.5
(C) 0.35 – 0.45
(D) 0.25 – 0.45
(E) Answer not known

32. The breakage of wires in any one prestressed concrete member shall not exceed _____ percentage during tensioning.

(A) 8.6
(B) 1.5
(C) 3.5
(D) 2.5
(E) Answer not known

33. The bending moment caused by eccentric loading is equal to the product of axial force and _____.

(A) Reaction force
(B) Eccentricity
(C) Moment
(D) Distance from end support
(E) Answer not known

34. Recommended effective length of column as per IS : 456-2000, when column effectively held in position at both ends but not restrained against rotation, is _____.

(A) 0.65 L
(B) 0.80 L
(C) 1.00 L
(D) 1.20 L
(E) Answer not known

35. The minimum depth of foundation based on the Rankine's theory is computed by $h =$ _____.

(A) $\frac{p}{w}\left(\frac{1+\sin\phi}{1-\sin\phi}\right)^2$

(B) $\frac{p}{w}\left(\frac{1-\sin\phi}{1+\sin\phi}\right)^3$

(C) $\frac{p}{w}\left(\frac{1-\sin\phi}{1+\sin\phi}\right)^2$

(D) $\frac{p}{w}\left(\frac{1-\sin^2\phi}{1+\sin^2\phi}\right)$

(E) Answer not known

36. The effective flange width (b_f) of 'T' beam is calculated by _____

(A) $b_f = \left(\frac{L_0}{6}\right) + b_w + 12\,D_f$

(B) $b_f = \left(\frac{L_0}{6}\right) + b_w + 6\,D_f$

(C) $b_f = \left(\frac{L_0}{12}\right) + b_w + 6\,D_f$

(D) $b_f = \left(\frac{L_0}{12}\right) + b_w + 3\,D_f$

(E) Answer not known

37. As per IS code for the ultimate limit state the values of partial safety factor for concrete and steel is _____ and _____.

(A) 1.65 and 1.50
(B) 1.00 and 1.50
(C) 1.50 and 1.15
(D) 1.25 and 1.15
(E) Answer not known

38. Modulus of elasticity of concrete is expressed as E_c = _____.

(A) $0.7\sqrt{f_{ck}}\ N/mm^2$
(B) $4000\sqrt{f_{ck}}\ N/mm^2$
(C) $5\sqrt{f_{ck}}\ N/mm^2$
(D) $5000\sqrt{f_{ck}}\ N/mm^2$
(E) Answer not known

39. The time of shrinkage coefficient may be expressed as $S_t = \left[\frac{t}{(35+t)}\right]$ where t represent _____.

(A) Time in seconds after seven days of curing
(B) Time in days after seven days curing
(C) Time in hours after seven days curing
(D) Time in minutes after seven days of curing
(E) Answer not known

40. For loading class 3.0, the minimum live load taken for design purpose of slab is _____.

(A) 2.5 – 4.0 kN/m^2

(B) 2.5 kN/m^2

(C) 4.0 kN/m^2

(D) 3.0 kN/m^2

(E) Answer not known

41. When was the Archaeological Survey of India (ASI) formally established?

(A) 1848

(B) 1861

(C) 1901

(D) 1947

(E) Answer not known

42. Which historic monuments and its surrounding garden were restored during Lord Curzon's Government in the early 20th century?

(A) Sun temple, Konark

(B) Qutub Minar

(C) Taj Mahal

(D) Elephanta caves

(E) Answer not known

43. Identify the major legislative act passed by the Indian Government in 1904, related to conservation

(A) Indian Heritage Act
(B) The Ancient Monuments Preservation Act
(C) The Conservation of Antiquities Act
(D) The Historical Sites Protection Act
(E) Answer not known

44. Which technique was used by Brunelleschi and when to reduce tension in dome structure?

(A) Coffering
(B) Tension rings
(C) Hollow pots
(D) Ribbing
(E) Answer not known

45. Identify the term used to describe modernization with or without adaptive alteration.

(A) Mise en scene
(B) Mise en valeur
(C) Haute Couture
(D) Avant - garde
(E) Answer not known

46. As per Bernard M Feilden, which of the following is NOT listed as one of the three major value categories used in conservation assessment?

(A) Emotional value
(B) Financial value
(C) Cultural value
(D) Use value
(E) Answer not known

47. Clarence Perry's neighborhood unit was most directly shaped by his experience in which urban planning project?

(A) Radburn – New Jersey
(B) Broadacre City
(C) Forest hill garden – New York
(D) Sunnyside garden – New York
(E) Answer not known

48. In the context of Clarence Perry's neighborhood unit, which of the following best describe the design principle regarding vehicular traffic?

(A) Highways should cross the neighborhood
(B) Roads must radiate from center
(C) No highway through the neighborhood
(D) Expressway an internal spine
(E) Answer not known

49. Which physical element is described as forming a strong, clear edge in the structure of Boston's Urban layout?

(A) Atlantic Avenue
(B) Beacon Hill
(C) Charles River
(D) Commonwealth Avenue
(E) Answer not known

50. Which element serves as a reference point and is often a singular physical object in Kevin Lynch's urban image theory?

(A) Node
(B) District
(C) Path
(D) Landmark
(E) Answer not known

51. Match the following with their Respective authors :

Books	Authors
(a) A tale of Two Cities	1. Paul Zucker
(b) The square in space time	2. Kevin Lynch
(c) The city image its elements	3. Steen Eiler Rasmussen
(d) The Radburn Idea	4. Clarence S. Stein

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

(E) Answer not known

52. Reason and Assertion Type :

Assertion [A] : The book 'The American Vitruvius' is considered a visual "Thesaurus" for Architects and urban planners.

Reason [R] : The book's eclectic collection of illustration made it widely Influential.

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

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

53. Reason and Assertion Type :

Assertion [A] : Doshi's GSFC Township design includes a modified Radburn layout that restricts vehicular traffic from entering the residential core.

Reason [R] : The Township design features a single circumferential road and a car free central core with public facilities connected by pedestrian paths.

(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 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

54. What was one of the main reasons Prime Minister Nehru rejected the design of Governor's palace in the capital complex of Chandigarh?

(A) Design too costly
(B) Failed safety standards
(C) Resembled colonial hierarchy like viceroy's palace
(D) Le Corbusier's minimalist vision
(E) Answer not known

55. The Karmukha town layout is most strategically suited to which type of geographic location?

(A) Plateau with water resources
(B) Hill side near farms
(C) River bend/coast for trade & defence
(D) Fortified mountain valley
(E) Answer not known

56. The Swastica – type town plan, symbolizing auspiciousness and cosmic order, is primarily recognized for which of the following spatial characteristics?

(A) Concentric circles radiating from a temple
(B) Four arms branching out from a central node with cul-de-sacs
(C) Symmetrical square zones arranges in sprial
(D) Two parallel axial roads intersecting at 90 degrees
(E) Answer not known

57. Which ancient Indian text contains the directive "First Lay out the towns and then play out the houses", reflecting modern urban planning principles?

(A) Rig-Veda
(B) Vishwakarma Prakash
(C) Arthashastra
(D) Narada Smriti
(E) Answer not known

58. Which factor contributes the most to the transformation from village to city in Mesopotamia?

(A) Growth in population alone
(B) Invention of iron tools
(C) Centralized control and cooperation in irrigation
(D) Development of Religion
(E) Answer not known

59. The protection of religious buildings under the Ancient Monument Preservation Act, can be terminated if

(A) It is declared unsafe
(B) The structure is too old
(C) Due notice is given by the owner
(D) It has tourist potential
(E) Answer not known

60. Which ancient Indian City described by Megasthenese had a wooden wall with 64 gates and 570 Towers?

(A) Ayodhya
(B) Patliputra
(C) Nalanda
(D) Takshasila
(E) Answer not known

61. Choose the following statement which is TRUE about the relationship between carpet area and plinth area?

(A) Carpet area is always greater than Plinth Area
(B) Carpet area is always smaller than Plinth Area
(C) Carpet area and plinth area are usually the same
(D) Carpet area and plinth area are not related
(E) Answer not known

62. The built up covered area measured at the floor level of the basement or of any storey is known as _____

(A) Built up Area
(B) Plinth Area
(C) Carpet Area
(D) Plot Area
(E) Answer not known

63. Which of the following aspect is 'NOT' considered while calculating (FAR) Floor Area Ratio for a particular area?

(A) Population density
(B) Land use zone
(C) Water supply and drainage facilities
(D) Number of buildings
(E) Answer not known

64. Identify the indirect technique of artificially recharging the ground water from the following list

(A) Aquifer modification
(B) Dug well recharge
(C) Stream augmentation
(D) Bore hole flooding
(E) Answer not known

65. The maximum number of population that can be supported by the environment of an area through optimum utilization of the available resources of that area is termed as _____

(A) Sustainable development
(B) Carrying capacity
(C) Environmental capacity
(D) Infrastructure capacity
(E) Answer not known

66. The term "Area Sabha" refer to

(A) A division of the municipality into wards
(B) A division of each ward into smaller areas
(C) The Municipal Council's governing body
(D) The Mayor's Office
(E) Answer not known

67. The Tamil Nadu Urban Local Bodies Act consolidates laws related to

(A) Only Municipalities
(B) Only Municipal Corporations
(C) Both Municipalities and Municipal Corporations
(D) Town Panchayat, Municipalities and Municipal Corporations
(E) Answer not known

68. What percentage of the normal premium FSI rate is charged for properties located within 500 meters from the centre line of the Metro Rail Corridor?

(A) 25%
(B) 50%
(C) 75%
(D) No charges
(E) Answer not known

69. Identify the year of establishment of the Chennai Unified Metropolitan Transport Authority (CUMTA)

(A) January 2019
(B) November 2010
(C) January 2021
(D) March 2008
(E) Answer not known

70. Which of the space shall 'not' be counted towards FSI calculation?

(A) Elevated tanks in the terrace floor provided with the height below the tank from the floor is above 2 metre
(B) Area of the basement floor or floors used for parking
(C) WC provided in the terrace floor with floor area exceeding 10 sq.m.
(D) Corridors in all the floors of a building
(E) Answer not known

71. Non-motorized transport is powered by

(A) Electricity
(B) Fuel engines
(C) Human effort
(D) Solar energy
(E) Answer not known

72. Identify the following which is not a common para transit mode in India?

(A) Auto rickshaws
(B) Cycle rickshaws
(C) Metro buses
(D) Shared taxis
(E) Answer not known

73. Identify the following model which is not used for modal split analysis?

(A) Gravity model
(B) Probit analysis
(C) Logit analysis
(D) Discriminant analysis
(E) Answer not known

74. The total present trip in a zone is 100 and the future expected trip is 500. What is the uniform growth factor?

(A) 50
(B) 1
(C) 5
(D) 0.2
(E) Answer not known

75. Frequently used regression model for trip generation is the _____ multiple regression model.

(A) Linear
(B) Polynomial
(C) Exponential
(D) Logarithmic
(E) Answer not known

76. The traffic volume is usually expressed in

(A) LMV
(B) PCU
(C) LCV
(D) HCV
(E) Answer not known

77. Arrange the planning units from low to high depending on the hierarchy of urban development on the basis of population

(A) Community, Neighbourhood, Regional, District
(B) Neighbourhood, Community, District, Sub-city
(C) Neighbourhood, District, Regional, Sub-city
(D) Community, Neighbourhood, Regional, Sub-city
(E) Answer not known

78. The moving observer method is a technique adopted for the measurement of

(A) Spot speed of vehicles
(B) Traffic flow of the stream
(C) Capacity of the stream
(D) Origin and destination of traffic
(E) Answer not known

79. Recommended sample size for home interview survey of an area having population under 50,000 are

(A) 1 in 5 households
(B) 1 in 8 households
(C) 1 in 10 households
(D) 1 in 15 households
(E) Answer not known

80. In transportation survey, the defined study area is sub-divided into smaller areas known as

(A) Sectors
(B) Sub zones
(C) Zones
(D) Land parcels
(E) Answer not known

81. _____ are partially enclosed areas of water which are approached by open entrance with water level fluctuations

(A) Mooring buoys
(B) Tidal basin
(C) Wreck buoys
(D) Beacons
(E) Answer not known

82. The quiet water is obtained in the harbour by a _____ break water parallel and connecting to the shore at one end.

(A) Straight
(B) Curved
(C) Square
(D) Parallel
(E) Answer not known

83. _____ examining the coast and adjacent shore for suitable locations of the port

(A) Wind rose diagram
(B) Aerial photographs
(C) Hyetograph
(D) Hydrocarbons
(E) Answer not known

84. The basic runway length thus obtained is consider to base on _____

(A) Inner and outer horizontal surfaces
(B) Change in direction of runway
(C) Number of gate positions
(D) Balanced field concept
(E) Answer not known

85. A taxiway on an apron used to access gate positions _____

(A) Aircraft stand
(B) Apron
(C) Airport reference point
(D) Terminal taxi lane
(E) Answer not known

86. How much depth of the cutting side drain of the railway line?

(A) 1100 mm
(B) 1200 mm
(C) 1400 mm
(D) 1600 mm
(E) Answer not known

87. The process of filling the ballast around the sleepers is called _____

(A) Bearing plates
(B) Boxing of the ballast
(C) Blocks
(D) Buffer stop
(E) Answer not known

88. Permissive signal are?

(A) Stop signal
(B) Distant signal
(C) Warner and distant signal
(D) Warner signal
(E) Answer not known

89. Match the gauge type with gauge width :

(a)	Standard gauge	1.	0.610 m
(b)	Meter gauge	2.	1.676 m
(c)	Narrow gauge	3.	0.762 m
(d)	Light gauge	4.	1.00 m

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

(E) Answer not known

90. In following which system is control movement of train as per Indian railway's?

(A) Transmission system

(B) Monitoring system

(C) Point system

(D) Automotive block system

(E) Answer not known

91. Bradbury's analysis for shear load transfer capacity of a single dowel bar is?

(A) $2d^3$ Fs

(B) $Fb.d^2$

(C) $0.785\ d^2Fs$

(D) 12.5 (Ld+1.5 Fs)

(E) Answer not known

92. Which of the following factor does not causing mud pumping in rigid pavement?

(A) Extent of slab deflection
(B) Type of subgrade soil
(C) Amount of free water
(D) Inadequate thickness
(E) Answer not known

93. Which one is not component's of flexible pavement?

(A) Soil sub-grade
(B) Base course
(C) Surface course
(D) Cement concrete slab
(E) Answer not known

94. For highways the maximum legal axle load as specified by Indian road congress is?

(A) 8710 kg
(B) 8170 kg
(C) 8017 kg
(D) 8701 kg
(E) Answer not known

95. Formula used to find void ratio (e)

(A) $e = \frac{V_v}{V_s}$
(B) $e = \frac{V_v}{V}$
(C) $e = \frac{V_a}{V_v}$
(D) $e = S_r w$
(E) Answer not known

96. Los Angeles Abrasion test value should not exceeds _____ for road work.

(A) 20%
(B) 35%
(C) 30%
(D) 25%
(E) Answer not known

97. The IRC recommended psychological widening formula is

(A) $W_{ps} = \frac{nl^2}{2R}$
(B) $W_{ps} = \frac{V}{9.5\sqrt{R}}$
(C) $W_{ps} = \frac{V^2}{225R}$
(D) $W_{ps} = e + f$
(E) Answer not known

98. Determine the rate of superelevation if horizontal circular curve is 100 m, design speed is 100 kmph and lateral friction is 0.15

(A) 0.637
(B) 0.152
(C) 0.787
(D) 0.007
(E) Answer not known

99. Which of these are not tests on bitumen?

(A) Solubility test
(B) Spot test
(C) Sound test
(D) Softening point test
(E) Answer not known

100. Which one of these is not a characteristics of traffic?

(A) Speed
(B) Goods vehicles
(C) Nature of traffic
(D) Volume
(E) Answer not known

101. The plans prepared to specify the implementation details that comply with government policies such as housing, rainwater harvesting, disaster management, barrier free environment, tourism and facilitate formulation of specific projects are

(A) Regional plans
(B) Development plans
(C) Local area plans
(D) Special purpose plans
(E) Answer not known

102. The merging of lands and financing them with the involvement of land-owners without compulsory land acquisition by planners for plot reconstitution scheme is known as

(A) SEZ
(B) TDR
(C) Land pooling
(D) Land acquisition
(E) Answer not known

103. In SEZ scheme supplies of goods and services in SEZ from _____ are treated as exports

(A) Domestic tariff area
(B) International tariff area
(C) Duty free shops
(D) Small scale industries
(E) Answer not known

104. Which of the following statements are true about TDR?

(i) TDR allows the owner to sell the development rights of a particular parcel of land to another

(ii) Premium FSI is transferable

(iii) Premium FSI and TDR are same

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

105. As per CRZ notification 2019, the HTL means the line on the land upto which the highest water line reaches during the _____ tide

(A) Summer
(B) Winter
(C) Autumn
(D) Spring
(E) Answer not known

106. One of the below is an innovative source of revenue for local bodies

(A) Taxes
(B) Income from interests
(C) Land auction
(D) Surcharges
(E) Answer not known

107. The term _____ is used in the industry to refer to the viability of a public-private partnership project

(A) Bank ability
(B) Break event
(C) Affordability
(D) Net present value
(E) Answer not known

108. The main aim of AMRUT 2.0 is making the cities

(A) Secured economy
(B) Safety
(C) Water secure
(D) ICT enabled
(E) Answer not known

109. Which of the following statements are true

(i) Raster data structures do not provide precise locational information.

(ii) Remotely sensed data acquired by a sensor is an example of raster data representation.

(iii) Raster data uses two-dimensional Cartesian (x, y) coordinate system to store the shape of a spatial entity.

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

110. An agreement between public and private entity for providing services or infrastructure to citizens is termed as

(A) Public private partnership
(B) Pooled finance development
(C) Town planning schemes
(D) Private planning agreement
(E) Answer not known

111. Aerial photographs are recorded with photogrammetric mapping cameras from altitudes of approximately

(A) 200 m to over 20,000 m
(B) 300 m to over 20,000 m
(C) 500 m to over 30,000 m
(D) 600 m to over 10,000 m
(E) Answer not known

112. _____ denotes the physical state of the land, such as the quantity and type of surface vegetation, water and earth materials

(A) Land use
(B) Land cover
(C) Geology
(D) Lithology
(E) Answer not known

113. A specific pixel on an image or location on a map whose geographic coordinates are known is termed as

(A) Skew point
(B) Ephemeris
(C) Ground control point
(D) Cell point
(E) Answer not known

114. The process of detecting and removing errors through editing in GIS is termed as

(A) Correcting
(B) Verifying
(C) Cleaning
(D) Calibrating
(E) Answer not known

115. A digital cartographic representation of the elevation of land (z value) at regularly spaced intervals in x and y directions is known as

(A) Digital elevation model
(B) Global positioning system
(C) Geographical model
(D) Geographical information system
(E) Answer not known

116. In raster representation, the terrain is divided into a number of parcels or quantised into units. A parcel or a unit is called as a

(A) Grid cell
(B) Node
(C) Entity
(D) Code
(E) Answer not known

117. The operation that removes stray pixels that can appear in an image when a map or blueprint is dirty or wrinkled is known as

(A) De speckling
(B) Grey scaling
(C) Thresholding
(D) Rubber sheeting
(E) Answer not known

118. The process of acquiring information of any physical object or area without physical contact in any way such that the observer is either nearby or far away is known as

(A) Cartography
(B) Remote sensing
(C) Digitizing
(D) Rubber sheeting
(E) Answer not known

119. In GIS maps benchmark is represented as a

(A) Point feature
(B) Line feature
(C) Area feature
(D) Non spatial feature
(E) Answer not known

120. The practice of attaching locational information to census data is referred to as

(A) Geocoding
(B) External referencing
(C) Global positioning
(D) Rasterization
(E) Answer not known

121. ———— or light sensitive glasses have been developed, containing submicroscopic halide crystals, which turn dark when exposed to strong light and regain their transparency when the light source is removed.

(A) Photogenic
(B) Photovoltaic
(C) Photochromatic
(D) Photosynthetic
(E) Answer not known

122. For Maritime desert conditions, it is suggested that ceiling temperature should not exceed air temperature by more than ————

(A) 2°C
(B) 20°C
(C) 1°C
(D) 15°C
(E) Answer not known

123. The amount of solar radiation may be influenced by local factors like

(1) Transparency of the atmosphere

(2) Slope and orientation of site

(3) Wind speeds

(4) Amount of precipitation

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

124. ———— is the climatic condition of the smallest area unit having a horizontal extent from less than one meter to 100 m and vertical extent from ground surface to 100 m.

(A) Local climate
(B) Meso climate
(C) Micro climate
(D) Macro climate
(E) Answer not known

125. The longest shadow of wind is produced by a shelter belt density of ———— mass to void ratio.

(A) 30–45%
(B) 40–55%
(C) 50–65%
(D) 70–85%
(E) Answer not known

126. ———— are used to remove particulars from the water and return it to the water body

(A) Submersible pumps
(B) Filtration systems
(C) Aeration pumps
(D) Overflow system
(E) Answer not known

127. The disadvantages of flexible pavements in URBAN LANDSCAPE include

(1) Higher maintenance cost

(2) Shorter life span

(3) Ability to be easily opened and patched

(4) Weak edges that may require curb

(A) (1), (2), (3) are correct

(B) (1), (3), (4) are correct

(C) (1), (2), (4) are correct

(D) (2), (3), (4) are correct

(E) Answer not known

128. The ultimate shadow length of an existing or proposed tree in Northern latitudes can be calculated by using the altitude angle of the sun at noon on _____.

(A) March 21

(B) June 21

(C) September 21

(D) December 21

(E) Answer not known

129. Which type of parking is the least efficient?

(A) Parallel

(B) Perpendicular

(C) 30°

(D) 45°

(E) Answer not known

130. Following are the advantages of porous paving systems

(1) Storm water detention

(2) Infiltration basins

(3) Vegetative beds

(4) High maintenance

(A) (1) and (2) only

(B) (2) and (3) only

(C) (3) and (4) only

(D) (1) and (4) only

(E) Answer not known

131. Natural ventilation by ———— occurs when air inside a building is at a different temperature than air outside.

(A) Venturi effect

(B) Stack effect

(C) Bouyancy effect

(D) Cumulative effect

(E) Answer not known

132. A vegetated or green roof contains the following

(1) Soil

(2) Plants

(3) Drainage

(4) Insulation layer

(A) (1) , (2), (3) are correct

(B) All are correct

(C) (2) , (3), (4) are correct

(D) (1) , (3), (4) are correct

(E) Answer not known

133. The amount of daylight entering a room depends on the following

(1) Window size

(2) North facing windows

(3) Orientation

(4) Colour of interior surfaces

(A) (1), (2) only

(B) (1), (2), (3) only

(C) (2), (3) only

(D) All the above

(E) Answer not known

134. ———— is the overall coefficient of heat transfer in a building material and is measured in W/m^2K.

(A) S-factor

(B) M-factor

(C) U-factor

(D) R-factor

(E) Answer not known

135. Energy efficiency can be influenced through built form via

1. Shape
2. Insulation
3. Windows & glazing
4. Landscape

(A) 1, 2, 3 are correct

(B) 2, 3, 4 are correct

(C) 1, 3, 4 are correct

(D) 1, 2, 4 are correct

(E) Answer not known

136. Which of the following is 'NOT' a factor on which the capacity of a road depends

(A) Width
(B) Surface
(C) Vehicle type
(D) Alignment
(E) Answer not known

137. Following are the stages of site planning

1. Defining the problem
2. Programming & analysis of site & user
3. Management support
4. Developed design & detailed costing

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

138. Following are the aspects of study about Natural Physical features in Site Analysis

(i) Topography & Contours

(ii) Type of soil

(iii) Name of the Property owner

(iv) Drainage Patterns of the site

(A) (i) & (ii) are correct

(B) (i), (ii), (iii) are correct

(C) (i), (ii), (iv) are correct

(D) All are correct

(E) Answer not known

139. Which of the following are Soft Data for Site Analysis?

(i) Views

(ii) Neighbourhood

(iii) Contours

(iv) Climate

(A) (i) & (iii) are correct

(B) (ii) & (iii) are correct

(C) (i) & (ii) are correct

(D) (iii) & (iv) are correct

(E) Answer not known

140. Chain surveying is that type of surveying in which only _____ measurements are made in the field.

(A) Linear
(B) Angular
(C) Linear & Angular
(D) Linear & Vertical
(E) Answer not known

141. The speech zone lies in the frequency range of _____

(A) 5 to 20 Hz
(B) 30 Hz to 100 Hz
(C) 500 to 2000 Hz
(D) 200 Hz to 300 Hz
(E) Answer not known

142. _____ is provided to industrial waste water for removing finer particles

(A) Screening
(B) Absorption
(C) Floatation
(D) Adsorption
(E) Answer not known

143. The automobiles moving on road form the _____ source of air pollution

(A) Point
(B) Bend
(C) Stationary
(D) Mobile
(E) Answer not known

144. The dry refuse is _____ into powder form without charging its chemical form

(A) Composting
(B) Incineration
(C) Pulverised
(D) Settled
(E) Answer not known

145. _____ carries only liquid waste, it does not carry human excreta.

(A) Rain water pipe
(B) Soil pipe
(C) Vent pipe
(D) Waste pipe
(E) Answer not known

146. _____ is a physical washing operation used to reduce chemical conditioning requirements in sludge conditioning.

(A) De watering
(B) Illumination
(C) Elutriation
(D) Thickening
(E) Answer not known

147. _____ as a processes removal of settleable solids and thickening of sludge.

(A) Oxidation pond
(B) Attached film growth process
(C) Sedimentation
(D) Phosphorous removal
(E) Answer not known

148. _____ pumps are used to lift small quantity of sewage from basement of building to a high level sewer

(A) Reciprocating pump
(B) Tubular pump
(C) Air pressure pump
(D) Centrifugal pump
(E) Answer not known

149. _____ are provided at every bend, junctions, change of gradient and diameter in the sewer line.

(A) Ventilating columns
(B) Lampholes
(C) Portable pump set
(D) Manholes
(E) Answer not known

150. In Lateral Sewers the minimum flow may be between _____ of the average flow

(A) 0.2 to 0.3 %
(B) 0.02 to 0.03 %
(C) 0.002 to 0.003 %
(D) 20 to 30 %
(E) Answer not known

151. The approximate optimum velocity for 10 cm diameter pipe is _____

(A) 0.9 m/sec
(B) 0.09 m/sec
(C) 0.090 m/sec
(D) 0.20 m/sec
(E) Answer not known

152. In _____ the water from high level source is distributed to the low level consumers without pumping

(A) Gravitational system
(B) Radial System
(C) Ring System
(D) Pumping System
(E) Answer not known

153. _____ distribution system network have to be adopted for older towns which have developed in a haphazard manner

(A) Ring system
(B) Radial system
(C) Dead end system
(D) Grid iron system
(E) Answer not known

154. _____ for providing connections with the water mains for releasing water during fires.

(A) Meters
(B) Zeolites
(C) Hydrants
(D) Acrometer
(E) Answer not known

155. _____ filter works under pressure and is known as pressure filter.

(A) Slow sand gravity
(B) Rapid sand gravity
(C) Trickling filter
(D) Contact bed
(E) Answer not known

156. _____ stresses are caused in metal pipes when they are exposed and laid above the ground

(A) Internal
(B) External
(C) Temperature
(D) Foundation reaction
(E) Answer not known

157. Typhoid fever is caused by _____.

(A) Salmonella paratyphi
(B) Helminth
(C) Protozoa
(D) Salmonella typhi
(E) Answer not known

158. _____ bacteria is beneficial to human beings.

(A) Parasitic bacteria
(B) Thermophilic bacteria
(C) Coliform bacteria
(D) Saprophytic bacteria
(E) Answer not known

159. In _____ method hardness is determined by titrating against Di Ethylene Diamine Tetracitic Acid (EDTA)

(A) Clark's
(B) Versenate
(C) Hehners
(D) Electrometric
(E) Answer not known

160. The odour in water is measured in terms of _____.

(A) Odour intensity
(B) Threshold odour number
(C) Arbitrary units
(D) Hazen units
(E) Answer not known

161. Expand AMASR Act

(A) Ancient Monuments and Archeological Sites and Remains
(B) Association of Monuments and Archeological Survey Reports
(C) Authority for Management of Ancient Structures and Ruins
(D) Archeological Management and Survey of Ruins
(E) Answer not known

162. As per National Wildlife Action Plan (NWAP) 2002-2016, All identified areas around protected areas and wildlife corridors are to be declared as _____ under Environment (Protection) Act, 1986

(A) Ecologically Fragile
(B) Heritage Zone
(C) Protected Zone
(D) Regulated area
(E) Answer not known

163. The _____ study provides a more sophisticated approach to economic forecasting.

(A) Input-output
(B) Economic growth
(C) Economic base
(D) Multiplier effect
(E) Answer not known

164. Emphasis should be given on _____ in urban areas to reduce heat island effects.

(A) Buildings
(B) Vegetation
(C) Infrastructure
(D) Roads
(E) Answer not known

165. In Eco-City Planning Course _____ approach is used to first synthesize the holistic situation and analyse the concrete problems and then define the key planning fields.

(A) Top-down
(B) Bottom-up
(C) Top-up
(D) Bottom-down
(E) Answer not known

166. The term SPONGE CITY was coined by a Landscape Architect _____ in 2003.

(A) Edwin Lutyens
(B) Le Corbusier
(C) Kongjian Yu
(D) Sir Ebenezer Howard
(E) Answer not known

167. Under various e-services of a Smart City, e-health and Tele Care deals with _____.

(A) Distant learning opportunities
(B) Supports business installation
(C) Distant support and services to elderly, civilians with diseases, disabled
(D) Supports public safety
(E) Answer not known

168. The population range of Metropolitan City I as per URDPFI guidelines is _____.

(A) 1 lakh to 5 lakh
(B) 10 lakh to 50 lakh
(C) 50 lakh to 1 crore
(D) More than 1 crore
(E) Answer not known

169. _____ recommends low rise and higher density development to improve overall energy efficiency of the area.

(A) National Mission on Sustainable Habitat
(B) UNEP
(C) Master plan
(D) Sustainable development
(E) Answer not known

170. _____ can be defined as a pattern of Urban and Metropolitan growth that reflects low-density, automobile-dependent, exclusionary new development on the fringe of settled areas.

(A) Fringe
(B) Urban settlement
(C) Satellite town
(D) Sprawl
(E) Answer not known

171. _____ compares actual outcomes with predicted outcomes which can be used to assess the quality of predictions and the effectiveness of Mitigation in EIA process.

(A) Post-decision monitoring
(B) Decision making
(C) Auditing
(D) Evaluation of impacts
(E) Answer not known

172. In the context of Environmental Impact Assessment EIS stands for

(A) Environmental Impact Assessment
(B) Environmental Impact Statement
(C) Environmental Impact Science
(D) Environmental Impact Report
(E) Answer not known

173. In EIA projects _____ narrows the application of EIA to those projects that may have significant environmental impacts.

(A) Scoping
(B) Impact Assessment
(C) Public participation
(D) Screening
(E) Answer not known

174. The Central Place Theory was developed by _____.

(A) Edwin Lutyens
(B) Christaller
(C) Le-Corbusier
(D) Charles Correa
(E) Answer not known

175. The _____ indicates how much the typical firm is willing to pay per acre for different production sites in the city.

(A) Multiplier effect
(B) Bid-rent function
(C) Agglomeration economics
(D) Economics base study
(E) Answer not known

176. The _____ is defined as the change in total income per unit change in export sales.

(A) Expenditure
(B) Profit
(C) Loss
(D) Income multiplier
(E) Answer not known

177. _____ is defined as an increase in total employment, growth results from an increase in the demand for labour or an increase in labour supply

(A) Economic growth
(B) Economic study
(C) Economics base
(D) Economics
(E) Answer not known

178. Economists have developed simplest theory based on the observation that there are economies of scale in trade activities defined as the activities associated with _____ goods.

(A) Importing
(B) Exporting
(C) Business
(D) Importing and exporting
(E) Answer not known

179. In Agglomeration economies ———— involves the advantages gained by employers and job seekers, buyers and sellers and business partners as the size of the markets expands increasing the likelihood of finding suitable matches that meet their needs and quality expectations

(A) Learning
(B) Sharing
(C) Matching
(D) Giving
(E) Answer not known

180. The mixed Land use development means

(A) More than one type of use in a building
(B) Residential
(C) Commercial
(D) Industrial
(E) Answer not known

181. Where an overhead line of voltage exceeding 650V passes above or adjacent to any building or part of a building, it shall have on the basis of maximum sag a vertical clearance above the highest part of the building immediately under such line, of not less than

(A) 1.2 m
(B) 2.5 m
(C) 3.7 m
(D) 4.0 m
(E) Answer not known

182. Delhi falls under the climatic zone of

(A) Hot Dry
(B) Warm - Humid
(C) Composite
(D) Temperate
(E) Answer not known

183. The code of Practice for plain and Reinforced concrete is

(A) IS 800 – 1984
(B) IS 456 – 2000
(C) IS 875 – 1987
(D) IS 883 – 1994
(E) Answer not known

184. According to TNCD & BR 2019, the extent of land reserved for community recreational purpose, when the Extent of site between 3000 sq.m and 10,000 sq.m shall be

(A) 5% of the area excluding roads
(B) 10% of the area excluding roads
(C) 5% of the area including roads
(D) 10% of the area including roads
(E) Answer not known

185. According to TNCD & BR 2019, in areas designated for Primary Residential and /or mixed Residential use zone in the master plan, sites abutting and gaining access from roads of width 18m and above are deemed to have been zoned for.

(A) Institutional zone
(B) Industrial zone
(C) Commercial zone
(D) Parks and playgrounds
(E) Answer not known

186. The Reserve Bank of India was designed by

(A) Drake and Lasdun
(B) Maxwell Fry
(C) John A. Ritchie
(D) A. Carbone
(E) Answer not known

187. Egmore station and Victoria Memorial Hall at Madras/Chennai was designed by

(A) Vincent Esch
(B) Henry Irwin
(C) Sris Chandra Chatterjee
(D) Mehrotra
(E) Answer not known

188. Arrange the Historicism, Architects in the chronological order.

(i) Koolhas
(ii) Yamasaki
(iii) Saarinen
(iv) Moretti

(A) Saarinen, Yamasaki, Moretti, Koolhas
(B) Koolhas, Saarinen, Yamasaki, Moretti
(C) Moretti, Saarinen Yamasaki, Koolhas
(D) Moretti, Yamasaki, Koolhas, Saarinen
(E) Answer not known

189. Identify the building designed by Patrick Hodgkinson which has long lines of housing with green house living room which are stacked on the diagonal.

(A) Lever Brothers Building, Newyork city
(B) Foundling Estate, London
(C) The Gallaratese Neighbourhood Milan
(D) Chicago civic centre
(E) Answer not known

190. In the Barrier Free Environment the maximum force for Pushing or Pulling or sliding a door should be

(A) 10 kN
(B) 15 kN
(C) 20 kN
(D) 25 kN
(E) Answer not known

191. In universal design the minimum level of lighting for Directional Signage and maps and text panels is

(A) 100 lux
(B) 150 lux
(C) 200 lux
(D) 250 lux
(E) Answer not known

192. The sign typefaces used in universal design sign board must be of ———— family.

(A) Sans serif family
(B) Serif family
(C) Grotesque
(D) Typography
(E) Answer not known

193. The minimum wheel chair manoevering space on the pushside of the door handle is

(A) 100 mm
(B) 200 mm
(C) 300 mm
(D) 400 mm
(E) Answer not known

194. In universal design the minimum walk way width for two way traffic should be

(A) 1500 mm
(B) 1750 mm
(C) 1800 mm
(D) 2000 mm
(E) Answer not known

195. The methodology of universal design process is termed as

(A) Horizontal
(B) Bottom up
(C) Top down
(D) None of the above
(E) Answer not known

196. The modular proportioning system was developed by

(A) F.L. Wright
(B) Le-Corbusier
(C) Ken
(D) Andrea Palladio
(E) Answer not known

197. The type of organisation followed in Kimball Art Museum, Forth worth, Texas.

(A) Linear
(B) Radial
(C) Cluster
(D) Grid
(E) Answer not known

198. The visual weightage of a shape can be increased or decreased by modifying its

(A) Size
(B) Proportion
(C) Scale
(D) Tonal value
(E) Answer not known

199. This element provides a moderate degree of definition and enclosure for outdoor spaces while allowing filtered sunlight and breeze to penetrate

(A) Colonnades
(B) Pergolas
(C) Atrium
(D) Courtyard
(E) Answer not known

200. In architecture terms "context" generally refers to the

(A) The place in which buildings are located
(B) The circumstance the event is happening
(C) Idea behind
(D) The terms in which it is fully understood
(E) Answer not known