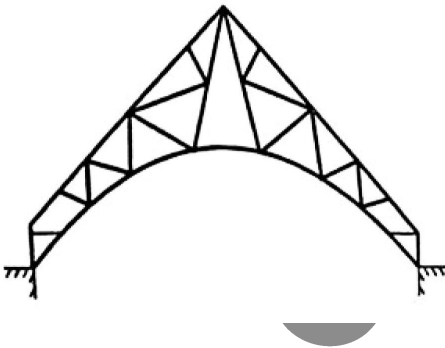# UPPCL (JE) 2016

1. A good malleable material possess _____.
- (a) low degree of plasticity
- (b) high degree of plasticity
- (c) necessarily great strength
- (d) necessarily high degree of ductility

2. Ultimate load method of designing a RCC structure w.r.t. elastic theory method is:
- (a) More economical
- (b) More costly
- (c) Equal in cost
- (d) Not comparable in costing

3. If e represents the void ratio of the soil and G is its specific gravity, the critical gradient is:
- (a) G+1/1–e
- (b) G+1/1+e
- (c) G–1/1–e
- (d) G–1/1+e

4. With tuberculation of the pipes, roughness of the pipes _____ and carrying capacity of the pipes _____.
- (a) increases, increases
- (b) increases, decreases
- (c) decreases, increases
- (d) decreases, decreases

5. At hinge, bending moment will be:
- (a) Zero
- (b) Low
- (c) Moderate
- (d) Maximum

6. Which of the following is used to determine the small colour densities?
- (a) Turbiditimeter
- (b) Nephelometer
- (c) Tintometer
- (d) Hygrometer

7. For 1st class bricks, the water absorption capacity should not be more than _____ of its weight.
- (a) 10%
- (b) 20%
- (c) 30%
- (d) 40%

8. Tacheometric distance formula, D=f.s/I +(f+d) is applicable only when line of sight is _____ and staff is held truly _____.
- (a) horizontal, horizontal
- (b) horizontal, vertical
- (c) vertical, vertical
- (d) vertical, horizontal

9. Convective precipitation is caused due to:-
- (i) Upward movement of air warmer than its surroundings
- (ii) Air striking mountains

Which of these is/are correct?
- (a) Only i
- (b) Only ii
- (c) Both of the above
- (d) Neither i nor ii

10. The magnitude of dip at the equator is:
- (a) 0°
- (b) 22.50°
- (c) 90°
- (d) 180°

11. As compared to high rate filter, standard rate filter requires _____ land area.
- (a) more
- (b) less
- (c) equal
- (d) no

12. Vorticity of a fluid is equal to:
- (a) Rotational component
- (b) Half the rotational component
- (c) Double the rotational component
- (d) One fourth the rotational component

13. Which of the following is not a brittle material?
- (a) Copper
- (b) Cast iron
- (c) Concrete
- (d) Glass

14. When the flow is such that one third of the static head is consumed in pipe friction, the power delivered by the given pipeline will be:
- (a) Zero
- (b) Unity
- (c) Same as always
- (d) Maximum

15. Both the end stations are free from local attraction if the difference between fore and back bearing of a line is:
- (a) 0°
- (b) 90°
- (c) 180°
- (d) 270°

16. If a thin cylinder is subjected to a fluid pressure of $0.2 \ N/mm^2$ whose thickness is 5 mm and diameter is 20 mm. What is the magnitude of Hoop stress generated in it?
- (a) $0.2 \ N/mm^2$
- (b) $0.4 \ N/mm^2$
- (c) $1.4 \ N/mm^2$
- (d) $0.8 \ N/mm^2$

17. Water hammer pressure can be considerably reduced using:-
- (a) Slow closing valves
- (b) Rapid closing valves
- (c) Both slow and rapid closing valves
- (d) None of the valves

18. _____ is only suitable for small bunds or thin arch dams.
    (a) Straight Drop Spillway
    (b) Ogee Spillway
    (c) Shaft Spillway
    (d) Side Channel Spillway

19. Where does the Mach number finds its maximum significance?
    (a) Flow in closed conduit pipe
    (b) In cavitation studies
    (c) Where fluid compressibility is important
    (d) In capillary studies

20. Presence of _____ in water enhances the process of leaching.
    (a) Nitrogen
    (b) Carbondioxide
    (c) Sulphur
    (d) Sulphurdioxide

21. A clay which contains Kaolinite has an activity value of:
    (a) 1   (b) 0
    (c) 0.4   (d) 0.8

22. The following figure represents:

    (a) Vaulted Ceiling Truss
    (b) Bow String Truss
    (c) Arched Truss
    (d) Cannot be determined

23. The resistance offered to slipping of steel bars from concrete is due to:
    i.   Pure adhesion
    ii. Frictional resistance
    iii. Mechanical resistance
    Which of these is/are correct?
    (a) only i
    (b) ii and iii / ii
    (c) i and iii / i
    (d) i, ii and iii

24. The minimum pressure exerted by the soil on the retaining wall is known as:

    (a) Seepage pressure
    (b) Passive Earth pressure
    (c) Active Earth pressure
    (d) Earth pressure at rest

25. In smooth pipes, if R represents Reynold's Number, Friction factor for turbulent flow is given by:
    (a) $0.64/R$ (b) $64/R$
    (c) $0.316/R^{¼}$ (d) $0.316/^{4/5}$

26. The chemical name of calcite is:
    (a) Calcium Carbonate
    (b) Calcium Chloride
    (c) Calcium Fluoride
    (d) Calcium Sulphate

27. In a ductile material, post elastic strain is _____.
    (a) 1%   (b) 2-3%
    (c) 3-5%
    (d) Greater than5%

28. For the construction of domes:
    (a) Heavier stones are preferred
    (b) Lighter stones are preferred
    (c) Stones are not preferred
    (d) Both lightier and heavier stones are preferred

29. Which of the following gas develops explosive tendency in water?
    (a) Sulphur   (b) Methane
    (c) Oxygen   (d) Fluorine

30. If the difference in the reduced levels of the end points is H, slope correction for a slope distance 'l' will be
    (a) H/l (b) $H/2l$
    (c) H^2/l (d) $H^2/2l$

31. Which of the following foundation is used to transfer the heavy structural loads from columns to soils having low bearing capacity?
    (a) Inverted arc footing
    (b) Cantilever footing
    (c) Grillage footing
    (d) Combined footing

32. _____ is particularly desirable in the materials which are subjected to shock loading.
    (a) Ductility   (b) Brittleness
    (c) Malleability   (d) Toughness

33. If at a place, the magnetic bearing of the sun at noon is 182°30', the magnetic declination at that point will be:
    (a) 2°15'   (b) −2°30'
    (c) 2°30'   (d) 3°30'

34. Piezometer is suitable for fluid related measurements which are _____.
(a) small and positive
(b) small and negative
(c) large and positive
(d) large and negative

35. Hydraulic pump will start pumping only when pressure head is _____ manometric head.
(a) equal to
(b) greater than
(c) lower than
(d) greater than or equal to

36. Yield of well will be _____ if permeability of the soil is more.
(a) zero
(b) less
(c) more
(d) uncertain

37. The moment of resistance of a balanced reinforced section is obtained by multiplying the lever arm with:
(a) Compressive force
(b) Tensile force
(c) Either compressive or tensile force
(d) Compressive and tensile force both

38. If L represents the staff reading and 'x' as the angle of inclination, error due to nonverticallity of the staff will be:.
(a) L(sin x – 1)
(b) L(tan x – 1)
(c) L(sec x –1)
(d) L(cosec x –1)

39. In determining the bearing capacity of piles, empirical factor C is assumed _____ for drop hammers.
(a) 0.25
(b) 1.5
(c) 2.5
(d) 3.5

40. The tangent distance of a curve of radius 'r' deflected through an angle of 60 degrees will be:
(a) r
(b) $r\sqrt{3}$
(c) $r/\sqrt{3}$
(d) Infinite

41. If P is the weight of a prismatic bar and L is its length, what is the deflection of the bar due to self weight if AE is the Axial Rigidity:
(a) PL/AE
(b) 2PL/AE
(c) PL/8E
(d) PL/2AE

42. As compared to Stone masonry, brick masonry is more:
(a) Fire resistant
(b) Costly
(c) Skilled practice
(d) Strong

43. In a venturimeter, to avoid flow separation, angle of divergence should not be greater than:
(a) 3º
(b) 7º
(c) 12º
(d) 20º

44. Gauge pressure has _____ value.
(a) zero
(b) positive
(c) negative
(d) zero, positive or negative

45. English bonds used in bricks is:
(a) Very cheap
(b) Costly
(c) Economical
(d) Cheap as well as costly

46. Due to excessive pressure of the retained soil, the retaining wall will tend to move:
(a) Away from the backfill
(b) Towards the backfill
(c) Nowhere
(d) At its own position i.e. vibration

47. In Marcus's method of designing two way slabs, thickness of slab is generally taken to be _____ of shorter span.
(a) 1/10
(b) 1/20
(c) 1/30
(d) 1/40

48. The pH of water used in concrete must not be less than:-
(a) 7.4
(b) 7
(c) 6.6
(d) 6

49. If the velocity of pressure wave generated is 2 m/s, the value of critical time is:
(a) 2s
(b) 4s
(c) 1s
(d) 0.5s

50. A number of filteration wells are connected through porous pipes to a sump well known as _____.
(a) Open well
(b) Spring
(c) Ranney well
(d) Jack well

51. For laminar flow, Kinetic energy correction factor is:..
(a) 1
(b) 1.33
(c) 2
(d) 2.7

52. In the design of singly reinforced simply supported beams, the maximum bending moment will be (Given W is the maximum load and l is the length):
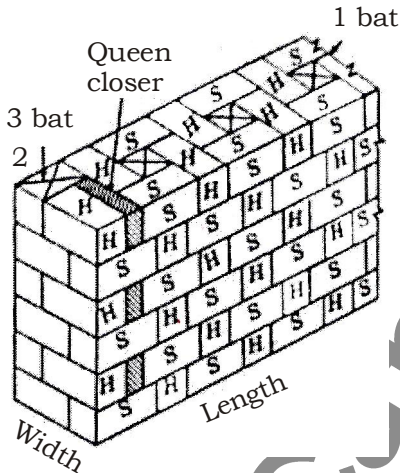(a) Wl/64
(b) W/8l2
(c) $Wl^2/8$
(d) $Wl^2/32$

53. If the whole circle bearing of a line is 150°, its reduced bearing will be:-
(a) S
(b) W
(c) S60ºE
(d) S30ºE

54. Aqueducts are designed to carry _____ of full supply.
(a) 10% –25%
(b) 25% –50%
(c) 50% –75%
(d) 100%

55. In _____ method of plane table surveying, maximum number of ground measurements are made.
(a) Radiation
(b) Intersection
(c) Resection
(d) Traversing

56. Number of arithmetical checks in Rise and Fall method is:-
(a) 1
(b) 2
(c) 3
(d) 4

57. Surface profile of a forced vortex flow is:-
(a) Straight line
(b) Ellispe
(c) Hyperbolic
(d) Parabolic

58. The consumptive use coefficient for crops like wheat, barley, flax and other small grains is approximately:
(a) 0.6
(b) 0.66
(c) 0.9
(d) 1.1

59. If a vertical circular plate of diameter 'd' is submerged in water, what is the depth of centre of pressure from the water surface?
(a) d/2
(b) 3d/5
(c) 5d/8
(d) 4d/7

60. The central triangle is said to be equilateral if slope of simple fink truss is:
(a) 30°
(b) 45°
(c) 60°
(d) 90°

61. On increasing the watercement ratio, strength of cement paste:-
(a) Increases
(b) Decreases
(c) May increase or decrease
(d) Doesn't change

62. In context with Water Supply, working head is generally taken as _____ of the critical depression head.
(a) three times
(b) onethird
(c) two times
(d) half

63. The obtained graph in Maximum Principal Strain theory is a/an:-
(a) Square
(b) Rhombus
(c) Hexagon
(d) Ellipse

64. Rivet joint is:
(a) A lap joint
(b) A butt joint
(c) Lap and butt joint both
(d) Neither lap nor a butt joint

65. Pneumatic tyred rollers are used for compaction of _____ soil of low plasticity.
(a) sandy
(b) loamy
(c) silty
(d) plastic

66. The excess of silica _____ the cohesion between earth particles.
(a) highly increases
(b) slowly increases
(c) does not affects
(d) destroys

67. In Unconfined compression test of a soil, it is assumed that _____ moisture is lost.
(a) no
(b) 30%
(c) 70%
(d) 100%

68. Which of the following defects in timber is caused by growth of layers over wounds left after the branches been cut off?
(a) Rind-galls
(b) Rupture
(c) Twisted fibres
(d) Knots

69. A RCC column is said to be short if length to diameter ratio is:
(a) Less than 50 / 50
(b) Less than 30 / 30
(c) Less than 25 / 25
(d) Less than 15 / 15

70. How many horizontal web members are there in Compound fink truss?
(a) 1
(b) 2
(c) 3
(d) 4

71. If 'd' is the diameter of a bubble and 's' represents the surface tension, what is the pressure inside the bubble?
(a) 4s/d
(b) 4d/s
(c) 4s/3d
(d) 8s/d

72. In surveying, a 20 m chain contains:-
(a) 50 links
(b) 100 links
(c) 150 links
(d) 250 links

73. Excess of _____ is responsible for brick's decay.
(a) Magnesia
(b) Alumina
(c) Lime
(d) Silica

74. The articles prepared from refractory clays mixed with stone and crushed pottery are called:
(a) Tiles
(b) Terra cotta
(c) Porcelain
(d) Stonewares

75. Which of the following will least affect the per capita demand of water in a city?

(a) Size of the city

(b) Type of population

(c) Climatic conditions

(d) Festivals celebrated

76. If pressure due to submerged weight of the soil is equal to the seepage pressure, the effective pressure:

(a) Remains the same

(b) Becomes zero

(c) Becomes unity

(d) Becomes maximum

77. Frog is provided onto the bricks to:

i. indicate the manufacturer's name

ii. provide a key for mortar

Correct among these is/are correct?

(a) Only i (b) Only ii

(c) Both i and ii (d) Neither i nor ii

78. If B is the width of footing, W is the load per metre and P is the safe bearing capacity of the soil, then the correct relation amongst them will be:

(a) W = B/P (b) B = W/P

(c) P = WB (d) B = WP

79. If 'R' is the radius of the circle, so for a 20 m arc, the degree of a circular curve is:

(a) 1718.9/R (b) 2019/R

(c) 1145.4/R (d) 1765.9/R

80. Due to water logging of an area:

(a) Soil temperature falls

(b) Salt content decreases

(c) Carrying out cultivation operations becomes easier

(d) Decrease in wild vegetation is observed

81. At the free end of a shaft, angle of twist is:

(a) Zero (b) Low

(c) Moderate (d) Maximum

82. The magnitude of Earth pressure at rest is generally _____ than limiting active pressure and _____than passive pressure.

(a) higher, higher

(b) lower, lower

(c) higher, lower

(d) lower, higher

83. Which of the following irrigation technique is preferred where area has a irregular topography with excessive slope?

(a) Sprinkler Irrigation

(b) Sub-surface Irrigation

(c) Furrow Irrigation

(d) Border Irrigation

84. Shear and bond stresses of Simply Supported slabs is usually:-

(a) zero (b) very low

(c) moderate (d) high

85. If an incompressible fluid enters a pipe with a velocity of 4 cm/s and moves out with a velocity of 2 cm/s, calculate the cross sectional area of the inlet if the diameter of the pipe at the outlet is 7 cm.

(a) 154 sq.cm. (b) 77 sq.cm

(c) 14 sq.cm (d) 7 sq.cm

86. Increase in capillary rise of water in soils depends upon:

i. Void ratio

ii. Grain size

The correct amongst these is/are:-

(a) Only i (b) Only ii

(c) Both i and ii (d) Neither i nor ii

87. Capillary action is due to:-

(a) Adhesion

(b) Cohesion

(c) Adhesion and cohesion both (d) Neither adhesion nor cohesion

88. For laminar flow conditions in saturated soils, the rate of percolation is _____ the hydraulic gradient.

(a) directly proportional to

(b) inversely proportional to

(c) directly proportional to the square of

(d) inversely proportional to the square of

89. The least horizontal dimension of plain concrete pier should not be less than _____ of its height.

(a) 1/2 (b) 1/8

(c) 1/12 (d) 1/16

90. With respect to temperature, viscosity of liquids:-

(a) Increase

(b) Decrease

(c) May increase or decrease

(d) Remains unchanged

91. In hard wood, annual rings are:.....

(a) Clearly visible and nearer to each other

(b) Less distinct and far apart

(c) Clearly visible and far apart

(d) Less distinct and nearer to each other

92. The centre of adjacent rivets in the same row are separated by a distance known as:
 (a) Edge distance
 (b) Lap
 (c) Pitch
 (d) Gauge distance

93. _____ are used for the pipes laid in rivers with uneven bed.
 (a) Mechanical joint
 (b) Flexible joint
 (c) Socket joint
 (d) Spigot joint

94. For a body submerged in water, metacentric height for rolling condition will be _____ etacentric height for pitching condition.
 (a) less than (b) more than
 (c) equal to (d) unrelated to

95. The following figure represents:

 (a) Stretcher bond
 (b) Header bond
 (c) English bond
 (d) Flemish bond

96. Because of large stream discharge, _____ irrigation is more suitable for permeable soil.
 (a) Free flooding (b) Check flooding
 (c) Check basin (d) Furrow

97. A single acting steam hammer weighing 2000 kg and falling through a height of 2 m drives a pile an average penetration of 0.5 cm under the last few blows. What will be the allowable load (in tonnes) for the pile?
 (a) 40 (b) 80
 (c) 88.88 (d) 92.44

98. The shearing strength of the soil is due to:
 i. Cohesion
 ii. Structural resistance
 iii. Internal friction
 Which of these is/are NOT correct?
 (a) Only i
 (b) Only iii
 (c) ii and iii
 (d) None of the above

99. At constant discharge, to increase the head, hydraulic pumps are:.
 (a) Connected in series
 (b) Connected in parallel
 (c) Connected in series or parallel
 (d) Not connected

100. In Surveyor's compass, the graduated ring is attached to the:.
 (a) Box (b) Needle
 (c) Sight vane (d) Jewel bearing

101. In the graphical method of obtaining flow nets, if the lowest flow line conforms to the bottom boundary conditions, the flow net :
 (a) Is correct
 (b) Needs a small adjustment
 (c) Needs a bigger adjustment
 (d) Can't be corrected

102. The safe limit of chloride content in public supplies is generally:-
 (a) 45 ppm (b) 115 ppm
 (c) 250 ppm (d) 375 ppm

103. Plastic strain is generally _____ times the elastic strain.
 (a) 2 to 4 (b) 5 to 10
 (c) 10 to 15 (d) 20 to 25

104. If both ends of a 20 m long column are fixed, for Euler's load calculations, its effective length is taken to be:
 (a) 20 m (b) 40 m
 (c) 10 m (d) $20\sqrt{2}$

105. In design of a fillet weld, size of weld for rounded toe of rolled section must not be more than _____ of the thickness of the toe.
 (a) 1/4 (b) 1/2
 (c) 3/4 (d) 5/4

106. For single riveted joints, the expected efficiency of the steel pipe joints is approximately:
 (a) 0.47 (b) 0.63
 (c) 0.75 (d) 0.9

107. The curing time in cast-in-situ concrete piles is:-
 (a) Less (b) Moderate
 (c) High (d) Very high

108. When temperature increases, viscosity of the soil _____whereas its permeability _____.

(a) increases, increases

(b) increases, decreases

(c) decreases, increases

(d) decreases, decreases

109. Number of independent elastic constant for orthotropic materials such as wood is:-

(a) 2   (b) 9

(c) 14   (d) 21

110. Cement and water when poured into the form work for hardening normally takes _____ days to acquire fixed properties.

(a) 7   (b) 14

(c) 21   (d) 28

111. If the porosity of a soil mass is 0.5, its void ratio will be:-

(a) 0.2   (b) 0.33

(c) 0.5   (d) 0.71

112. In which of the following levels, the telescope is supported by rigid sockets at the either ends?

(a) Dumpy level

(b) Wye level

(c) Reversible level

(d) Titling levels

113. In the vane shear test of soil, the length of vane is usually kept equal to_____ its overall width.

(a) half   (b) onefourth

(c) double   (d) four times

114. Water is termed as sweet, if the value of TDS is less than:-

(a) 1000   (b) 1500

(c) 2000   (d) 3000

115. In the design of Doubly Reinforced Beams, if actual neutral axis is greater than critical neutral axis, the section is:

(a) Balanced

(b) Balanced or over reinforced

(c) Over reinforced

(d) Under reinforced

116. Production of incrustation and sediment deposits are found in:-

(a) Acidic water

(b) Alkaline water

(c) Acidic and alkaline water both

(d) Neither acidic nor alkaline water

117. Deflection of beams in prestressed concrete structures w.r.t. RCC structures is:

(a) Equal   (b) Less

(c) More   (d) Less or more

118. Zone of the soil affected by capillary action is:-

(a) Capillary fringe

(b) Capillary zone

(c) Capillary fringe or Capillary zone

(d) Neither capillary fringe nor capillary zone

119. Height of collimation method is _____ and _____ labour is required as compared to Rise and fall method.

(a) rapid, more   (b) rapid, less

(c) slow, less   (d) slow, more

120. If P is the population (in thousands) of a city exceeding 50000, what will be the water requirement (in Kilo litres)?

(a) $100P^2$ (b) $100\sqrt{P}$

(c) $75\sqrt{P}$ (d) None of these

121. _____ support the masonry in opening of doors and windows.

(a) Lintels   (b) Purlins

(c) Girder   (d) Rafters

122. Which of the following is the longest?

(a) Base line

(b) Tie line

(c) Check line

(d) Both Base and Tie line

123. Which of the following is not a part of Prismatic compass?

(a) Lifting pin

(b) Objective vane

(c) Spring brake

(d) Rider

124. Which of the following theory over estimates the elastic strength of ductile material ?

(a) Distortion energy theory

(b) Haigh's theory

(c) Maximum principal strain theory

(d) Maximum principal stress theory

125. If 'd' is the gross diameter, minimum pitch of a riveted joint must be:-

(a) 1.5 d   (b) 2.5d

(c) 3.5d   (d) 4d

126. Overall depth of Tbeam for medium loading of continuous beams is assumed to be _____ of the total span.

(a) 1/12 to 1/15

(b) 1/10 to 1/12

(c) 1/15 to 1/20

(d) 1/20 to 1/24

127. Polar moment of inertia of a solid circular shaft of diameter 'd' is:-

(a) $\pi d/4$ (b) $\pi d/6^4$

(c) $\pi d^4/32$ (d) $\pi d^4/64$

128. When a bar of length L at temperature T under load is free to expand, thermal stress generated is equal to:-

(a) LT   (b) αT

(c) $L\alpha$T   (d) Zero

129. For a given discharge through an orifice meter, the magnitude of Coefficient of discharge lies between:

(a) 0.51-0.65   (b) 0.64-0.76

(c) 0.76-0.85   (d) 0.86-0.98

130. Decrease in volume of soil mass under stress is called:-

(a) Compaction

(b) Compressibility

(c) Consolidation

(d) Contraction

131. Which of the following controls the entry of silt and prevent river floods from entering into the main canal?

(a) Head Works

(b) Branch Canals

(c) Distributaries

(d) Field Channels

132. The pitch of the roof truss is usually _____ of its slope.

(a) half   (b) one fourth

(c) double   (d) threefourth

133. The unit of strain is _____.

(a) m

(b) m^2

(c) m^{-1}

(d) strain is dimensionless

134. The foundation whose length is considerable greater than its width is:

(a) Footing

(b) Combined footing

(c) Strip foundation

(d) Raft foundation

135. Contour maps cannot be used for:

i. Calculating water capacity of reservoirs

ii. Determing the catchment area of drainage basin

Which of these is/are correct?

(a) Only i

(b) Only ii

(c) Both i and ii

(d) Neither i nor ii

136. Radius of visible horizon from top of a 134 m light house will be:-

(a) 44.62 km   (b) 54.5 km

(c) 87.44 km   (d) 89.67 km

137. According to Transit rule, correction to latitude of a line should be proportional to the:

(a) Length of transverse leg

(b) Departure

(c) Sum of departure and length of transverse leg

(d) Product of departure and length of transverse leg

138. For basic requirements of water supply, drainage and sanitation, as per the IS code, what is the domestic water demand in Indian cities and towns?

(a) 135 litres per head/day

(b) 200 litres per head/day

(c) 240 litres per head/day

(d) 340 litres per head/day

139. If area of the catchment is 62.5 sq.mm and axial length of the catchment is 10 mm, the form factor will be:

(a) 0.625   (b) 0.31

(c) 6.25   (d) 1

140. For perfectly dry soil, degree of saturation is:-

(a) Zero   (b) more than1

(c) 1   (d) Infinite

ANSWER KEY

1.	b	19.	c	37.	d	55.	a	73.	a	91.	c	109.	b
2.	a	20.	b	38.	c	56.	c	74.	d	92.	c	110.	d
3.	d	21.	c	39.	c	57.	d	75.	d	93.	b	111.	c
4.	b	22.	a	40.	c	58.	c	76.	b	94.	a	112.	c
5.	a	23.	d	41.	d	59.	c	77.	c	95.	d	113.	c
6.	c	24.	c	42.	a	60.	a	78.	b	96.	b	114.	a
7.	b	25.	c	43.	b	61.	b	79.	c	97.	c	115.	c
8.	b	26.	a	44.	d	62.	b	80.	a	98.	d	116.	b
9.	a	27.	d	45.	b	63.	b	81.	d	99.	a	117.	b
10.	a	28.	b	46.	a	64.	b	82.	c	100.	a	118.	c
11.	a	29.	b	47.	c	65.	c	83.	a	101.	a	119.	b
12.	c	30.	d	48.	d	66.	d	84.	b	102.	c	120.	b
13.	a	31.	c	49.	c	67.	a	85.	b	103.	c	121.	a
14.	d	32.	d	50.	d	68.	a	86.	c	104.	c	122.	a
15.	c	33.	b	51.	c	69.	d	87.	c	105.	c	123.	d
16.	d	34.	a	52.	c	70.	b	88.	a	106.	b	124.	c
17.	a	35.	d	53.	d	71.	d	89.	c	107.	c	125.	b
18.	a	36.	c	54.	c	72.	b	90.	b	108.	c	126.	a

127.	c
128.	d
129.	b
130.	a
131.	a
132.	a
133.	d
134.	c
135.	d
136.	a
137.	b
138.	b
139.	a
140.	a