MAGDALINE COACHING CENTRE (mc^2)
CIVIL ENGINEERING PAPER 2

1. Physical weathering occurs due to
   a) Temperature changes
   b) Wedging action of ice
   c) Spreading of roots of plants
   d) All the above
   ANS: d
2. Generally soil refers to
   a) Solid medium
   b) Liquid medium
   c) Particulate medium
   d) Gaseous medium
   ANS: C
3. Cohesionless soils are formed due to
   a) Oxidation of rocks
   b) Leaching action of water on rocks
   c) Blowing of hot and cold wind
   d) Physical disintegration of rocks
   ANS: d
4. Peat is composed of
   a) Clay and sand
   b) Decayed vegetable matter
   c) Inorganic silt and silty clay
   d) Synthetic chemicals
   ANS: B
5. China clay is also called
   a) Kaolin
   b) Illite
   c) Montmorillonite
   d) None of the above
   ANS: A
6. Honey combed structure is found in
   a) Gravels
   b) Coarse sands
   c) Fine silts and clay
   d) Highly plastic clays
   ANS: C
7. Soil can exist in
   a) Three phase system
   b) Two phase system
   c) Single phase system
   d) All the above
   ANS: D

8. Shape of clay particles is
   a) Rounded
   b) Rectangular
   c) Needle like
   d) None
   ANS: C
9. For a cohesive soil, the modulus of elasticity
   a) Varies linearly with depth
   b) Is constant with depth
   c) Can't say
   d) None of the above
   ANS: b
10. For a cohesionless soil, the modulus of elasticity
   a) Varies linearly with depth
   b) Is constant with depth
   c) Cant say
   d) None of the above
   ANS : a
11. The most commonly used specific gravity of a soil in soil mechanics is
   a) Mass sp.gr.
   b) Apparent sp.gr.
   c) Grain sp.gr.
   d) Bulk sp.gr.
   ANS: C
12. Specific gravity of soil is
   a) Same for clays and sands
   b) Determined by hydrometer
   c) Less than 2.0 for most soil
   d) More than 2.5 for most soils
   ANS: D
13. The ratio of weight of water to the total weight of the soil is known as
   a) Water content
   b) Degree of saturation
   c) Saturated density
   d) None of the above
   ANS: d
14. Any change in moisture content of a soil changes
   a) Value of angle of shearing resistance
   b) Strength of soil
   c) Amount of compaction required
   d) All the above
   ANS: d

15. Theoretically, the void ratio in a soil can have a value of
    a) More than one only
    b) Less than one only
    c) Equal to one
    d) Can be less or more than one
    ANS: d
16. The soil sample for the hydrometer analysis is pretreated with the following agent
    a) Oxidising agent
    b) Reduction agent
    c) Sulphuric agent
    d) All the above
    ANS: a
17. In a hydrometer analysis the reason for addition of hydrogen peroxide and heating it is to remove
    a) Water present
    b) Air present
    c) Organic matter
    d) Calcium compound
    ANS: c
18. The deflocculating agent which is used in the sedimentation analysis is
    a) Hydrochloric acid
    b) Hydrogen peroxide
    c) Sodium hexa meta phosphate
    d) Sodium chloride
    ANS: c
19. Hydrometer is a device which is used to measure
    a) Temp. of liquid
    b) Density of liquids
    c) Sp.gr. of liquid
    d) All the above
    ANS: c
20. The range of values printed on a hydrometer are
    a) 1.0 to 1.04
    b) 0.995 to 1.04
    c) 0.9 to 1.04
    d) None
    ANS: b
21. In the hydrometer analysis, the effective depth will be
    a) Constant
    b) Goes on increasing
    c) Goes on decreasing
    d) None

ANS: b

22. In the pipette analysis, the sampling depth will be
    a) Constant
    b) Goes on increasing
    c) Goes on decreasing
    d) None
    ANS: a
23. If the temperature at the time of test is more than that of calibration of the hydrometer, the hydrometer reading will be
    a) Less
    b) More
    c) Same
    d) None
    ANS: a
24. With the increase of deflocculating agent, the density of soil suspension will
    a) Decrease
    b) Increase
    c) Be constant
    d) None
    ANS: b
25. The assumption in sedimentation analysis is as follows
    a) Soil particles are spherical
    b) Particles settle independent of other particles
    c) Walls of the jar where in settlement analysis is done do not affect the settlement
    d) All the above
    ANS: d
26. Textural classification is merely based on
    a) a grand size
    b) plasticity index
    c) shape of particles
    d) consistency limits
    ANS: a
27. the symbol OH indicates
    a) other soils
    b) clay of high plasticity
    c) silt of high plasticity
    d) organic silts and organic silts of high plasticity
    ANS: d
28. Peat is nothing but
    a) Organic silts
    b) Organic clay
    c) Inorganic silt

d) Inorganic clay
ANS: b

29. Generally, when compacted the GW type of soils will be
    a) Previous
    b) Very previous
    c) None previous
    d) Cannot say
    ANS: a
30. The work ability of the following soil will be excellent as a construction material
    a) GW
    b) GP
    c) GM
    d) GC
    ANS: a
31. Mixed traffic means
    a) Both up and down traffic
    b) Light traffic as of cycles to that of heavy traffic as of trucks
    c) Pedestrians + animal drawn coaches + lorries
    d) Slow moving and fast moving traffic
    Ans: b
32. The road connecting district headquarters of a state is
    a) National highway
    b) State highway
    c) District road (major)
    d) Minor district road
    Ans: b
33. The minimum co-efficient of lateral friction for a highway is
    a) 1
    b) 0.5
    c) 0.4
    d) 0.15
    Ans: d
34. Unevenness of a pavement should be preferably less than
    a) 100 cm/km
    b) 150 cm/km
    c) 250 cm/km
    d) 329 cm/km
    Ans: b
35. Width of a traffic lane is
    a) 3.75 m
    b) 5.50 m
    c) 7.00 m

d) 7.50 m

Ans: a

36. One of the natural factors influencing chamber is
    a) Type of material used for wearing coarse
    b) Topography of the area
    c) Nature of sub soil med with
    d) Amount of rainfall

    Ans: d
37. Minimum gradient to be adopted for a black top road is
    a) 0
    b) 1 in 200
    c) 1 in 20
    d) 1 in 50

    Ans : b
38. Minimum super elevation provided is
    a) 7%
    b) 10%
    c) Not less than the grade of the road
    d) Not less than camber at the section

    Ans: d
39. Max. amount of super elevation should not be greater than
    a) 2%
    b) 3%
    c) 5%
    d) 7%

    Ans: d
40. Minimum super elevation on a horizontal curve is
    a) 0
    b) 7%
    c) 1.4%
    d) Gradient on either side

    Ans: c
41. Higher value of super elevation is highly undesirable for
    a) Fast moving vehicles
    b) Slow moving vehicles
    c) Mixed traffic
    d) Non-snow falling area

    Ans: c
42. Higher value of super elevation is dangerous in case of
    a) A fast moving motor cycle
    b) Heavily loaded (but with a light material as cotton) bullock cart
    c) A road that is always dry

d) A long truck with a trailer

Ans: b

43. While negotiating a curve
    a) Wheels of both axles tread the same path
    b) Front wheels follow a less than rear wheels
    c) Rear wheels follow a less radius than the front wheels
    d) Depending on right hand or left hand curve it varies

    Ans: c
44. On sharp curves widening of the carriage way is done by
    a) Providing more width on the inner curve
    b) Providing more width on the outer curve
    c) Distributing half on inner and half on the outer
    d) Distributing ¾ on the outer and ¼ on the inner

    Ans: a
45. For sight distance calculation 'time of perception' and reaction depends on
    a) Speed of the vehicles
    b) Gradient of road
    c) Alertness of driver
    d) Nature of pavement

    Ans: c
46. "Gauge" on Indian railways is the
    a) Minimum distance between running faces of the two inner rails
    b) Distance between the running faces measured 14mm below the rail table
    c) Distance between the running faces measured 15.88mm below the rail table
    d) Distance between the running faces 16mm below the rail table

    Ans: a
47. World's widest Gauge is
    a) 1524 mm
    b) 1676 mm
    c) 1829 mm
    d) 2286 mm

    Ans: b
48. World's narrowest Gauge is
    a) 1000 mm
    b) 914 mm
    c) 762 mm
    d) 610 mm

    Ans: d
49. Gauge is slightly tightened
    a) On curves
    b) At diamond crossing
    c) When creep is more

d) At level crossing

Ans: b

50. Units of track modulus are
    a) Kg cm
    b) Kg cm/cm
    c) Kg/cm
    d) Kg/cm/cm

    Ans: d
51. A good formation bears
    a) Bears heavier loads
    b) Offers comfortable riding
    c) Gives easy maintenance
    d) Support ballast

    Ans: c
52. A track is elastic mainly because of
    a) Rails
    b) Sleepers
    c) Ballast
    d) Formation

    Ans: c
53. The top of formation is usually given a camber of
    a) 1 in 10
    b) 1 in 2
    c) 1 in 40
    d) 1 in 100

    Ans: c
54. An advantage of sand as ballast is
    a) Sand is easily blown out
    b) It offers smooth track
    c) It is cheap
    d) Vegetation may grow

    Ans: b
55. Brick bats when used as ballast
    a) Forms heaved tracks
    b) Forms centre bound track
    c) Corrode rails
    d) Create corrugation on rails

    Ans: d
56. Dusty track is created because of the following ballast
    a) Lime stone
    b) Brick bats
    c) Sand

d) Blast furnace slag

Ans: b

57. The ballast that is best suited to a steel sleeper is
    a) Gravel
    b) Brick bats
    c) Ashes and cinders
    d) Quartzite

    Ans: d
58. The ballast in between two adjacent sleepers is called
    a) Ballast cushion
    b) Shoulder ballast
    c) Packing
    d) Crib ballast

    Ans: d
59. A sleeper should
    a) Be easy to carry
    b) Be elastic
    c) Be less affected by derailment
    d) Permit easy lifting and packing

    Ans: d
60. A main disadvantage of timber sleeper is
    a) Light weight
    b) Attacked by white ants
    c) Pilferage is maximum
    d) Does not maintain gauge

    Ans: d
61. Sandy soils with good drainage become impermeable after prolonged use, if it is irrigated with a water containing _ sodium
    a) 25%
    b) 50%
    c) 75%
    d) 85%

    Ans:d

62. For irrigation purposes, the p-H value of water should be
    a) Between 3 and 6
    b) Between 6 and 8.5
    c) Between 8.5 and 11
    d) More than 11

    Ans: b

63. Which of the salt present in water is harmful for cultivation purposes?
    a) Sodium carbonate
    b) Potassium sulphate
    c) Calcium sulphate
    d) None of these
    Ans:d

64. A part of water which exists in the porous space of the soil by molecular attraction, is known as
    a) Capillary water
    b) Gravitational water
    c) Hygroscopic water
    d) All of these
    Ans : a

65. The amount of water required to fill up the pore spaces in soil particles by replacing all air held in pore spaces, is known as
    a) Field capacity
    b) Saturation capacity
    c) Available moisture
    d) All of these
    Ans : b

66. The moisture content of the soil, after free drainage has removed most of the gravity water, is known as
    a) Field capacity
    b) Saturation capacity
    c) Wilting coefficient
    d) Available moisture
    Ans- a

67. The water content at which plants can no longer extract sufficient water from the soil for its growth, is called
    a) Field capacity
    b) Saturation capacity
    c) Permanent wilting point
    d) Available moisture
    Ans- c

68. Available moisture may be defined as the
    a) Moisture content at permanent wilting point
    b) Difference in water content of the soil between field capacity and permanent wilting
    c) Maximum moisture holding capacity
    d) All of these
    Ans- b

69. The field capacity of a soil depends upon
    a) Capillary tension in soil
    b) Porosity of soil
    c) Either (a) or (b)
    d) Both (a) or(b)
    Ans- d
70. The conceptive use of water of a crop
    a) Is measured as the volume of water per unit area
    b) Is measured as depth of water on irrigated area
    c) May be supplied partly by precipitation and partly by irrigation
    d) All of the above
    Ans- d
71. The duty is largest
    a) At the head of the canal
    b) At the head of the water course
    c) On the field
    d) At all place
    Ans- c
72. The time (in days) that crop takes from the instant of its sowing to that of harvest is known as_ period
    a) Base
    b) Crop
    c) Kor
    d) None of these
    Ans- b
73. Crop ratio is the ratio of area irrigated
    a) In rabi season to kharif season
    b) In kharif season to rabi season
    c) Under perennial crop to total crop
    d) Under perennial crop to non perennial crop
    Ans-b
74. The duty of irrigation water will be less if
    a) Area irrigated is more
    b) Water supply requiredis less
    c) Water supply required is more
    d) None of these
    ans- c
75. The first watering before sowing the crop, is known as
    a) Kor watering
    b) Paleo
    c) Delta
    d) None of these

Ans- b

76. The crops required maximum water during
    a) First watering before sowing the crops
    b) Last watering before harvesting
    c) First watering when the crops has grown a few centimeters
    d) All of the above

    Ans-c

77. The average delta of rice crop is nearly
    a) 30 cm
    b) 60 cm
    c) 120 cm
    d) 150 cm

    Ans-c

78. The average duty for sugarcane in hectares /cumec is
    a) 200
    b) 400
    c) 600
    d) 800

    Ans- d

79. The optimum depth of kor watering is 19 cm for
    a) Wheat
    b) Sugarcane
    c) Rice
    d) Cotton

    Ans-c

80. Outlet discharge for a particular crop is given by
    a) Area/outlet factor
    b) Outlet factor/area
    c) Area X outlet factor
    d) None of these

    Ans-a

81. The optimum depth of kor watering for wheat in the plains of north india is
    a) 13.5 cm
    b) 16.5 cm
    c) 19 cm
    d) 21 cm

    Ans – a

82. Where steep land is available, the method of irrigation adopted is
    a) Free flooding
    b) Border flooding
    c) Check flooding
    d) Basin flooding

    Ans- a

83. For closed growing crops (such as wheat), the method of irrigation used is
    a) Free flooding
    b) Border flooding
    c) Check flooding
    d) Basin flooding

    Ans-b

84. Checked flooding method of irrigation is used for
    a) Closed growing crops
    b) Tracks with flat gradients
    c) Crops which can stand inundation of water for sometime
    d) Crops such as sugarcane, potatoes etc

    Ans-c

85. The method of irrigation used for orchards is
    a) Free flooding
    b) Border flooding
    c) Check flooding
    d) Basin flooding

    Ans-d

86. The earth's water circulatory system, is known as
    a) Water cycle
    b) Hydrologic cycle
    c) Precipitation cycle
    d) All of these

    Ans-b

87. The hydrology cycle is expressed by equation
    a) P=E-R
    b) P=E+R
    c) P=EXR
    d) P=E/R

    Ans-b

88. The amount of precipitation is measured by
    a) Rain gauge
    b) Osmoscope
    c) Turbidimeter
    d) All of these

    Ans-a

89. The commonly used rain gauge is
    a) Weighing bucket type
    b) Tipping bucket type
    c) Float type
    d) None of these

    Ans-c
90. The standard height of a standard rain gauge is
    a) 10 cm
    b) 20 cm
    c) 30 cm
    d) 40 cm

    Ans: c
91. The horizontal tunnels constructed at shallow depth along the banks of a river to intercept the ground water table are called
    a) Canals
    b) Infiltration galleries
    c) Springs
    d) Lakes

    Ans-b
92. The vertical wells provided along the banks of a river to draw ground water In dry season are called
    a) Open wells
    b) Tube wells
    c) Artesian wells
    d) Infiltrations wells

    Ans-d
93. A pipe sunk into the ground to tap the underground water is called
    a) Open wells
    b) Tube wells
    c) Artesian wells
    d) Infiltrations wells

    Ans-b
94. When in the previous strata, the surface of water surrounding the well is at atmospheric pressure, the well is known as
    a) Gravity well
    b) Artesian well
    c) Open well
    d) Deep well

    Ans- a
95. An artesian spring is formed
    a) When an aquifer gets exposed in a valley against a vertical cut

b) Due to continuous fault in a rock through which water under pressure comes out
c) When a porous strata gets enclosed between two impervious strata
d) None of the above

Ans- c

96. The continuous flow of water may be expected from
a) Surface springs
b) Artesian springs
c) Gravity springs
d) All of these

Ans- b

97. The layers such as sand and gravel which allow the water to pass through them are known as
a) Previous layers
b) Aquifers
c) Water bearing strata
d) All of these

Ans- d

98. The water bearing strata i.e. layers of sand ,gravel etc is called
a) An Aquifer
b) An Aquiclude
c) An Aquifuge
d) Zone of saturation

Ans- a

99. The portion of soil through which lateral movement of water takes place is called
a) Water table
b) AnAquiclude
c) Zone of saturation
d) None of these

Ans- c

100. The open wells or dug wells are also known as

a) Shallow wells
b) Draw wells
c) Percolation wells
d) All of these

Ans- d

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101. Which of the following statement is wrong?

a) The quality of tube well water is better than that of surface sources
b) The discharge of tube well is more than that of an open well
c) The tube well should not derive water from the first previous strata
d) None of the above

Ans- d

102. The growth of population may be conveniently represented by

a) Semi – logarithmic curve
b) Logistic curve
c) Straight line curve
d) All of these

Ans- b

103. The yield of a surface stream maybe obtained by

a) Cross section velocity method
b) Stream gauging
c) Chemical method
d) All of these

Ans- d

104. The yield of a underground source maybe obtained by

a) Pumping test
b) Recupating test
c) Both(a) and (b)
d) None of these

Ans-c

105. The yield of the well is measured in

a) Cum/h
b) Litres/h
c) Either (a) or (b)
d) None of these

Ans-c

106. The water mains should be designed for _ of the average daily water requirement

a) 100%
b) 150%
c) 225%
d) 250%

Ans-c

107. The presence of bacteria in water causes

a) Hardness
b) Alkalinity
c) Disease
d) Bad taste

Ans-c

108. Colloidal impurities if associated with organic matter having bacteria's become the chief source of

a) Hardness
b) Epidemic
c) Alkalinity
d) Bad taste

Ans- b

109. The finely divided dispersion of solid particles which are not visible to the naked eye and cannot be removed by ordinary filters are known as

a) Suspended impurities
b) Dissolved impurities
c) Colloidal impurities
d) None of these

Ans-c

110. When lead is present in water, it

a) Changes its colour
b) Causes turbidity
c) Causes alkalinity
d) None of these

Ans- d

111. The presence of hydrogen sulphide in water causes

a) Softening
b) Alkalinity
c) Acidity
d) Bad taste

Ans-c

112. The commercial osmoscopeis graduated with Po values from

a) 0 to 5
b) 5 to 10
c) 10 to 15
d) 15 to 20

Ans-a

113. The maximum permissible turbidity for domestic supplies, on silica scale is

a) 5 to 10 ppm
b) 10 to 20 ppm
c) 20 to 30 ppm
d) 30 to 40 ppm

Ans- a

114. The maximum acidity in water will occur at a PH value of

a) 0
b) 2
c) 7
d) 14

Ans-a

115. The most common cause of acidity in water is

a) Hydrogen
b) Oxygen
c) Carbon dioxide
d) All of these

Ans- c

116. The maximum permissible chlorine content for public supplies should be between

a. 0.1 to 0.2 ppm

b. 0.3 to 0. 4 ppm

c. 1.2 to 4 ppm

d. 6.5 to 8ppm

Ans- a

117. The maximum permissible quantity of iron and manganese in water for domestic purposes should be

a. 0.1 ppm

b. 0.3 ppm

c. 0.6 ppm

d. 0.8 ppm

Ans-b

118. Sphere shaped bacteria are called

a) Spirilla
b) Bacilli
c) Cocci
d) Trichobacteria

Ans- c

119. Membrane filter technique is used for testing

a) E-colli
b) Copper
c) Pathogenic bacterias
d) None of these

Ans- a

120. In dry feeding type of coagulants, the dose of coagulant is controlled by

a) Scrapers
b) Worm wheels
c) Paddles
d) None of these

Ans: b

121. A raft foundation with a basement floor is placed at a depth of 4 m below ground level. The superstructure imposed a load of 150 kN/m^2on the raft. The unit weight of the soil is 20 KN/m^3. What are the values of the gross and net loading pressures on the oil respectively

A) 230 KN/m^2 , 150 KN/m^2

B) 150 KN/m^2 , 230 KN/m^2

c)150 KN/m^2 , 70 KN/m^2

d)80 KN/m^2, 150 KN/m^2

Ans a)

122.If an STP test gave the average blow count of 32 in fine sand below water table ,then what is the corrected value of blow count

a)22.1

b)23.5

c)24.2

d)24.8

Ans b)

123.A saturated stiff clay has unit weight 2 gm/cm^3 and an unconfined compressive strength 2 kg/cm^2. The depth of the tension crack that would develop in this clay is

a)2 m

b)5 m

c)10 m

d)20 m

Ans c)

124.In tri-axial test carried out on a cohesionless soil sample with a cell pressure of 20 KPa ,the observed value of the applied stress at the point of failure was 40 KPa .The angle of internal friction of the soil is

a)30

b)45

c)60

d)15

And a)

125.If the dynamic viscosity of a fluid is 0.5 poise and specific gravity is 0.5 ,then kinematic viscosity of the fluid in stokes is

a)0.25

b)0.50

c)1.0

d)2.0

Ans c)

126.The pressure in metres of oil (G=0.8) equivalent to 80 m of water is

a)64

b)80

c)100

d)88

Ans c)

127.When the water surface coincides with the top edge of the rectangular vertical gate 40 m (wide) x 3 m (deep) ,the depth of centre of pressure is

a)1 m

b)1.5 m

c)2 m

d)2.5

Ans c)

128.A rectangular floating body is 20 m long and 5 m wide. The water line is 1.5 m above the bottom. If the centre of gravity is 1.8 m from the bottom ,then its metacentric height will be approximately

a)3.3 m

b)1.65 m

c) 0.34 m

d) 0.30 m

Ansc)

129.For a grit channel ,if the recommended floe velocity is 0.25 m/s and the detention period is 1 minute,then the length of the tank is

a) 15 m

b)25 m

c) 32.5

d) 40 m

Ans a)

130. The slope of a 1 m diameter concrete sewer laid at a slope of 1 in 1000 ,develops a velocity of 1 m/s ,when flowing full . When it is flowing half full ,the velocity of flow through the sewer will be

a) 0.5 m/s

b)1.0 m/s

c)2 m/s

d) 2.5 m/s

And b)

131.If a sewer drain carrying a discharge of 2 cumecs outfalls into a river carrying a discharge of 10 cumecs and having DO equal to 8.4 mg/l ,the resultant DO of the mix will be equal to

a) 5 mg/l

b) 7 mg/l

c)10.5 mg/l

d)9 mg/l

Ansb)

132.A catchment has an area of 150 ha and a runoff rainfall ratio of 0.40. if due to 10 cm rainfall over the catchment a stream flow at the catchment outlet lasts for 10 hours ,the average stream flow in the period is

a) 1.33 m^3/sec

b) 16.7 m^3/sec

c) 100 m^3/minute

d) 60000 m^3/hour

Ans c)

133.If the co-efficient of variation of rainfall value at 4 raingauge station is 30 % and permissible error in the estimation of mean rainfall is 10 % ,then the additional number of raingauge stations required in the catchment is

a)3

b)4

c)5

d)9

Ans c)

134.Given that the base period is 100 days and the duty of the canal is 1000 hectares per cumecs ,the depth of water will be

a) 0.864 cm

b) 8.64 cm

c)86.4 cm

d) 864 cm

Ans c)

135. During the particular stage of growth of a crop,consumptive use of water is 2.8 mm/day. If the amount of water availaible in the soil is 25 % of 80 mm depth of water ,what is the frequency of irrigation

a) 9 days

b) 13 days

c)21 days

d) 25 days

Ans: c

136.A circle of radius 7 m has a standard error of 0.02 m on the radius. The standard error of the area is

a)0.04 m^2

b)0.14m^2

c)0.28m^2

d)0.88 m²

Ans d)

137.A 30 m chain is found to be 0.1 m too short throughout the measurement. If the distance measured is recorded as 300 m ,then the actual distance measured will be

a)300.1 m

b)301.0 m

c)299.0 m

d) 310.0 m

Ans c)

138.The required slope correction for a length of 60 m along a gradient of 1 in 20 is

a) 7. 0 Cm

b)75 cm

c)0.75 cm

d)5.50 cm

Ans a)

139. The off racking of a vehicle having a wheel base of 6 m and negotiating a curved path of mean radius 25 m is

a)0.82 m

b)0.72 m

c)0.65 m

d)1.44 m

ANS B)

140. If an ascending gradient of 1 in 50 meets another ascending gradient of 1 in 30 then the deviation angle is

a) 1 in 50

b) 1 in 75

c) 1 in 30

d) 1 in 100

Ans b)

141. Surface tension of water

a) Increases with decrease in temperature
b) Decreases with decrease in temperature
c) Is independent of temperature
d) None of above

Ans-a

142. If a liquid has greater cohesion than adhesion with the solid, then the liquid in the capillary tube will

a) Rise with concave surface upward
b) Rise with convex surface upward
c) Depress with concave surface upward
d) Depress with convex surface upward

Ans-d

143. Centre of buoyancy always

a) Coincides with the centre of gravity
b) Coincides with the centroid of the volume of fluid displayed
c) Remains above the centre of gravity
d) Remains below the centre of gravity

Ans-b

144. Metacentric height for small values of angle of heel is the distance between the

a) Centre of gravity and centre of buoyancy
b) Centre of gravity and metacenter
c) Centre of buoyancy and metacenter
d) Free surface and centre of buoyancy

Ans- b

145. If a vessel containing liquid moves downward with a constant acceleration equal to 'g', then

a) The pressure throughout the liquid mass is atmospheric
b) There will be vacuum in the liquid
c) The pressure in the liquid mass is greater than hydrostatic pressure
d) None of the above

Ans-a

146. When a liquid rotates at a constant angular velocity about a vertical exist as a rigid body, the pressure intensity varies

a) Linearly with radial distance
b) As the square of the radial distance
c) Inversely as the square of the radial distance
d) Inversely as the radial distance

Ans- b

147. An open cubical tank of 2m side is filled with water. If the tank is rotated with an acceleration such that half of the water spills out, then the acceleration is equal to

a) g/3
b) g/2
c) 2g/3
d) G

Ans-d

148. A right circular cylinder open at the top is filled with liquid and rotate about its vertical axis at such a speed that half the liquid spills out, then the pressure intensity at the centre of bottom is

a) Zero
b) One-fourth its value when cylinder was full
c) One-half its value when cylinder was full
d) Cannot be predicted from the given data

Ans-a

149. The horizontal component of force on a curved surface is equal to the

a) Product of pressure intensity at its centroid and area
b) Force on a vertical projection of the curved surface
c) Weight of liquid vertically above the curved surface
d) Force on the horizontal projection of the curve surface

Ans-b

150. The eddy viscosity for to turbulent flow is

a) A function of temperature only
b) A physical property of the fluid
c) Dependent on the flow
d) Independent on the flow

Ans-c

151. When the velocity distribution is uniform over the cross- section, the correction factor for momentum is

a) 0
b) 1
c) 4/3
d) 2
Ans-b

152. Streamlines and pathlines always coincides in case of

a) Steady flow
b) Laminar flow
c) Uniform flow
d) Turbulent flow
Ans-a

153. In steady flow of a fluid, the total acceleration of any fluid particle

a) Can be zero
b) Is never zero
c) Always zero
d) Is independent of coordinates
Ans- a

154. The pitot tube is used to measure

a) Velocity at stagnation point
b) Stagnation pressure
c) Static pressure
d) Dynamic pressure
Ans-b

155. The theoretical value of coefficient of contraction of a sharp edge orifice is

a) 0.611
b) 0.85
c) 0.98
d) 1.00
Ans-a

156. The pitot static tube measures

a) Stagnation pressure

b) Static pressure
c) Dynamic pressure
d) Difference in total in dynamic pressure

Ans- c

157. Select the incorrect statement

a) The pressure intensity at vena contracta is atmospheric
b) Contraction is less at vena contracta
c) Streamlines are parallel throughout the jet at vena contracta
d) Coefficient of contraction is always less than one

Ans-b

158. Size of a venturimeter is specified by

a) Pipe diameter
b) Throat diameter
c) Angle of diverging section
d) Both pipe diameter as well as throat diameter

Ans-d

159. Due to each end contraction1, the discharge of rectangular sharp crested weir is reduced by

a) 5%
b) 10%
c) 15%
d) 20%

Ans-b

160. Coefficient of velocity of venturimeter

a) Is independent of Reynolds number
b) Decreases with higher Reynolds number
c) Is equal to the coefficient of discharge of venturimeter
d) None of the above

Ans-c

161. The pressure at the summit of a syphon is

a) Equal to atmospheric
b) Less than atmospheric
c) More than atmospheric
d) None of the above

Ans-b

162. Coefficient of velocity for bordas mouthpiece running full is

a) 0.611
b) 0.707
c) 0.855
d) 1.00

Ans-b

163. Coefficient of discharge for a totally submerged orifice as compared to that for and orifice discharging free is

a) Slightly less
b) Slightly more
c) Nearly half
d) Equal

Ans-a

164. Coefficient of contraction for an external cylindrical mouth piece is

a) 1.00
b) 0.855
c) 0.711
d) 0.611

Ans- a

165. Which of the following has highest coefficient of discharge ?

a) Sharp edged orifice
b) Venturimeter
c) Borda's mouth piece running full
d) Cipolletti weir

Ans-b

166. discharge over a broad crested weir is maximum when the depth of flow is

a) H/3
b) H/2
c) 2H/5
d) 2H/3

Ans-d

167. The ratio of maximum velocity to average velocity for steady flow between fixed parallel plates is

a) 2/3
b) 4/3
c) 3/2
d) 2

Ans-c

168.Which of the following statements is correct ?

a) Lower critical Reynolds number is of no practical significance in pipe flow problems
b) Upper critical Reynolds number is significant in pipe flown problems
c) Lower critical Reynolds number has the value 2000 in pipe flow
d) Upper critical Reynolds number is the number at which turbulent flow changes to laminar flow

Ans-c

169. The distance y from pipe boundary, at which the point velocity is equal to average velocity for turbulent flow, is

a) 0.223 R
b) 0.423 R
c) 0.577 R
d) 0.707 R

Ans-a

170. In which of the following the friction drag is generally larger than pressure drag ?

a) A circular disc or plate held normal to flow
b) A sphere
c) A cylinder
d) An airfoil

Ans-d

171. Theory of probability is applied to

a) Accidental errors only
b) Cumulative errors only
c) Both accidental and cumulative errors
d) None of the above

Ans- a

172. The difference between the most probable value of a quantity and its observed value is

a) True error
b) Weighted observation
c) Conditional error

d) Residual error

Ans- d

173. Which of the following instrument is generally used for base line measurements ?

a) Chain
b) Metallic tape
c) Steel tape
d) Invar tape

Ans- d

174. The position of a point can be fixed more accurately by

a) Cross staff
b) Optical square
c) Oblique off sets
d) Perpendicular offsets

Ans-d

175. During chaining along a straight line, the leader of a party has four arrows in his hands while the follower has 6. Distance of the follower from the starting point is

a) 4 chains
b) 6 chains
c) 120 m
d) 180 m

Ans-b

176. The permissible error in chaining for measurement with chain on rough or hilly ground is

a) 1 in 100
b) 1 in 250
c) 1 in 500
d) 1 in 1000

Ans- b

177. The correction for sag is

a) Always additive
b) Always subtractive
c) Always zero
d) Sometimes additive and sometimes subtractive

Ans-b

178. Cross staff is an instrument used for

a) Measuring approximate horizontal angles
b) Setting out right angles
c) Measuring bearings of the lines
d) None of the above

Ans-b

179. Which of the following is not used in measuring perpendicular off sets ?

a) Line ranger
b) Steel tape
c) Optical square
d) Cross staff

Ans- a

180. If the length of a chain is found to be short on testing, it can be adjusted by

a) Straightening the links
b) Removing one or more small circular rings
c) Closing the joints of the rings if opened out
d) All of the above

Ans- a

181. Which of the following is not the function of levelling head ?

a) To support the main part of the instrument
b) To attached the theodolite to the tripod
c) To provide a means for levelling the theodolite
d) None of the above

Ans -d

182. The adjustment of horizontal hair is required particularly when the instrument is used for

a) Levelling
b) Prolonging a straight line
c) Measurement of horizontal angles
d) All of the above

Ans –a

183. In the double application of principle of reversion , the apparent error is

a) Equal to true error
b) Half the true error
c) Two times the true error
d) Four times the true error

Ans-d

184. Which of the following errors can be eliminated by taking mean of both face observations?

a) Error due to imperfect graduations
b) Error due to eccentricity of verniers
c) Error due to imperfect adjustment of plate levels
d) Error due to line if collimation not being perpendicular to horizontal axis

Ans-d

185. Which of the following errors is not eliminated by the method of repetition of horizontal angle measurement?

a) Error due to eccentricity of verniers
b) Error due to displacement of station signals
c) Error due to wrong adjustment of line of collimation and trunnion axis
d) Error to inaccurate graduation

Ans-b

186. Which of the following errors cannot be eliminated by taking both face observations?

a) Error due to horizontal axis not being perpendicular to the verticular axis
b) Index error i.e. error due to imperfect adjustment of the vertical circle Vernier
c) Error due to none –parallelism of the axis of telescope level and line of collimation
d) None of the above

Ans-d

187. If a tripod settles in the interval death elapses between taking a back sight reading and the following four sides reading, than the elevation of turning point of

a) Increase
b) Decrease
c) Not change
d) Either a or b

Ans-a

188. The following sights are taken on a “turning point”

a) Foresight only
b) Backsight only
c) Foresight and backsight
d) Foresight and intermidatesight

Ans-c

189. The rise and fall method of levelling provides a complete check on

a) Backsight
b) Intermidatesight
c) Foresight
d) All of the above

Ans-d

190. In an internal focusing, the lens provided is

a) Concave
b) Convex
c) Plano-convex
d) Plano-concave

Ans- a

191. Which of the following errors can be neutralized by setting the level midway between the two stations?

a) Error due to curvature only
b) Error due to refraction only
c) Error due both curvature and reflection
d) None of the above

Ans –c

192. Height of instrument method of levelling is

a) More accurate than rise and fall method
b) Less accurate than rise and fall method
c) Quicker and less tedious for large number of intermediate size
d) None of the above

Ans-c

193. With the rise of temperature , the sensitivity of bubble tube

a) Decreases
b) Increases
c) Remains unaffected
d) None of the above

194. While doing levelling in undulating terrain , it is preferable to set the level on

a) The top of summit
b) The bottom of a valley
c) One side of the slope
d) Anywhere

Ans: c

195. Sensitiveness of a level tube is designated by
    a) Radius of level tube
    b) Length of level tube
    c) Length of bubble tube
    d) None of the above

    Ans-a

196. A series of closely spaced contour lines represents a
    a) Steep slope
    b) Gentle slope
    c) Uniform slope
    d) Plane surfaces

    Ans –a

197. Bench mark is established by
    a) Hypsometry
    b) Barometric levelling
    c) Spirit levelling
    d) Trigonometrical levelling

    Ans-c

198. Interaction method of detailed clothing is most suitable for
    a) Forest
    b) Urban areas
    c) Hilly areas
    d) Plants

    Ans-c

199. Over turning of vehicles on a curve can be avoided by using
    a) Compound curve
    b) Vertical curve
    c) Reserve curve
    d) Transition curve

    Ans-d

200. Parallax bar is used to measure
    a) Parallax
    b) Parallax difference
    c) Difference in elevation
    d) Relief displacement
    e) Ans-b