



PART – B

26. The pressure measured with the help of piezometer tube is
A) Atmospheric pressure B) Gauge pressure
C) Absolute pressure D) Vacuum pressure
27. A manometer is used to measure
A) Positive pressure B) Negative pressure
C) Atmospheric pressure D) Both A) and B)
28. The terminal velocity of a sphere settling in a viscous fluid varies as
A) The Reynolds number
B) The square of its diameter
C) Directly proportional to the viscosity of fluid
D) Its diameter
29. A vertical wall is subjected to a pressure due to one kind of liquid for a depth a depth 'H' on one of its side. The total pressure acts at a distance of _____ from the liquid surface.
A) $H/3$ B) $H/2$ C) $2H/3$ D) $3H/4$
30. A flow in which each liquid particle has a definite path and the paths of individual particles do not cross each other is called
A) Streamline flow B) Irrotational flow
C) Laminar flow D) Both A) and C)
31. Bernoulli's equation is applied for
A) Venturimeter B) Orifice metre
C) Pitot tube D) All of these
32. A tank is discharging water through an orifice fitted at its bottom. The time taken for completely emptying the tank is
A) Directly proportional to the surface area of the tank
B) Inversely proportional to the area of the orifice
C) Inversely proportional to the height of water in the tank
D) Both A) and B)
33. The hydraulic mean depth for a circular pipe of diameter (d) is
A) $d/2$ B) $d/3$ C) $d/4$ D) $d/6$
34. A weir is said to be narrow – crested, if its crest width is less than
A) Height of water B) Half the height of water
C) Length of the weir D) Half the length of weir



45. The double-mass curve technique is adopted to
- A) Check the consistency of raingauge records
 - B) To find the average rainfall over a number of years
 - C) To find the number of raingauges required
 - D) To estimate the missing rainfall data
46. A plot between rainfall intensity versus time is called as
- A) Hydrograph
 - B) Mass curve
 - C) Hyetograph
 - D) Isohyet
47. An isohyet is a line joining points having
- A) Equal evaporation value
 - B) Equal barometric pressure
 - C) Equal height above the mean sea level
 - D) Equal rainfall depth in a given duration
48. Interception losses
- A) Include evaporation, through flow and steam flow
 - B) Consists of only evaporation loss
 - C) Includes evaporation and transpiration losses
 - D) Consists of only steam flow
49. Wind speed is measured with
- A) A wind vane
 - B) A heliometer
 - C) Stevenson box
 - D) Anemometer
50. The science which deals with, occurrence and distribution of water is called as
- A) Hydrograph
 - B) Hygrometry
 - C) Hydrology
 - D) Hydraulics
51. Lysimeter is used to measure
- A) Infiltration
 - B) Evaporation
 - C) Evapotranspiration
 - D) Vapour pressure
52. Unit hydrograph was developed by
- A) Sherman
 - B) Bernoulli's
 - C) Newton
 - D) None of these
53. Unit hydrograph useful for
- A) Flood estimation
 - B) Watershed simulation
 - C) Extension of records
 - D) All the above



54. Φ - index always
- A) More than w-index
 - B) Less than w-index
 - C) Equal to w-index
 - D) No relation
55. The term base flow denotes
- A) Delayed groundwater flow reaching a stream
 - B) Delayed groundwater and snowmelt reaching a stream
 - C) Delayed groundwater and interflow
 - D) The annual minimum flow in a stream
56. A Unit hydrograph has one unit of
- A) Peak discharge
 - B) Rainfall duration
 - C) Direct runoff
 - D) The time base of direct runoff
57. Base-flow separation is performed
- A) On a unit hydrograph to get the direct-runoff hydrograph
 - B) On a flood hydrographs to obtain the magnitude of effective rainfall
 - C) On flood hydrographs to obtain the rainfall hyetograph
 - D) On hydrographs of effluent streams only
58. The shape of the recession limb of a hydrograph depends on
- A) Basin as well as storm characteristics
 - B) Storm characteristics only
 - C) Basin characteristics only
 - D) Base flow only
59. An instantaneous unit hydrograph is a hydrograph of
- A) Unit duration and infinitely small rainfall excess
 - B) Infinitely small duration and of unit rainfall excess
 - C) Infinitely small duration and of unit rainfall excess of an infinitely small area
 - D) Unit rainfall excess on infinitely small area
60. The slope–area method is extensively used in
- A) Development of rating curve
 - B) Estimation of flood discharge based on high water marks
 - C) Cases where shifting control exists
 - D) Cases where backwater effect is present



61. The probable maximum flood is
- A) The standard project flood of an extremely large river
 - B) A flood adopted in the design of all kinds of spillways
 - C) An extremely large but physically possible flood in the region
 - D) The maximum possible flood that can occur anywhere in the country
62. The hydrologic flood routing methods use
- A) Equation of continuity only
 - B) Both momentum and continuity equation
 - C) Energy equation only
 - D) Equation of motion only
63. The St. Venant equations for unsteady open channel flow are
- A) Continuity and momentum equations
 - B) Momentum equation in two different forms
 - C) Momentum and energy equations
 - D) Energy and continuity equations
64. The Muskingum method of flood routing is a
- A) Form of reservoir routing method
 - B) Hydraulic routing method
 - C) Complete numerical solution of St. Venant equations
 - D) Hydrologic channel-routing method
65. A linear reservoir is one in which the
- A) Volume varies linearly with elevation
 - B) Storage varies linearly with the outflow rate
 - C) Storage varies linearly with time
 - D) Storage varies linearly with the inflow rate
66. An aquifer confined at the bottom but not at the top is called
- A) Semiconfined aquifer
 - B) Unconfined aquifer
 - C) Confined aquifer
 - D) Perched aquifer
67. Two tanks are connected in parallel by two pipes A and B of identical friction factors and length. If the size of pipe A is double than that of pipe B, then their discharges will be in the ratio of
- A) 2
 - B) 4
 - C) 5.66
 - D) 32



68. A rectangular channel is 6 m wide and discharge $30 \text{ m}^3/\text{s}$. The upstream depth is 2.0 m acceleration due to gravity is 10 m/s^2 . Then what is the specific energy ?
A) 2.5 B) 0.3 C) 2.3 D) None of the above
- 69 For a hydraulically efficient rectangular channel of bed width 4.0 m, depth of flow is
A) 4 m B) 0.5 m C) 1 m D) 2 m
70. If fore bearing of a line is $S49^{\circ}52'E$ (assuming there is no local attraction), the back bearing of the line will be
A) $S52^{\circ}49'E$ B) $S49^{\circ}52'E$ C) $N49^{\circ}08'E$ D) $N49^{\circ}52'W$
71. A stratified soil deposit has three layers of thickness: $Z_1 = 4$, $Z_2 = 1$, $Z_3 = 2$ Units and the corresponding permeabilities of $K_1 = 2$, $K_2 = 1$ and $K_3 = 4$ unit respectively. The average permeability perpendicular to the bedding plane will be
A) 4 B) 2 C) 8 D) 16
72. Which one of the following would contain water with the maximum amount of turbidity ?
A) Lakes B) Oceans C) Rivers D) Well
73. A sewer of 400 mm diameter and slope 1 in 400, running half-full has a flow velocity of 0.82 m/sec. What velocity of flow will be obtained if the slope is made 1 in 100 ?
A) 3.28 m/s B) 1.64 m/s C) 0.82 m/s D) 0.41 m/s
74. Given that the base period is 100 days and the duty of the canal is 1000 hectares per cumecs, the depth water will be
A) 0.864 cm B) 8.64 cm C) 86.4 cm D) 864 cm
75. The convergence of which of the following method is sensitive to starting value?
A) False position B) Gauss Seidal method
C) Newton-Raphson method D) All of these
76. Acidic soils are reclaimed by
A) Leaching of the soil
B) Using limestone as a soil amendment
C) Using gypsum as a soil amendment
D) Provision of drainage



77. In the Gauss elimination method for solving a system of linear algebraic equations, triangularization leads to
- A) Diagonal matrix
 - B) Lower triangular matrix
 - C) Upper triangular matrix
 - D) Singular matrix
78. Leaching is a process
- A) By which alkali salts present in the soil are dissolved and drained away
 - B) By which alkali salts in soil come up with water
 - C) Of draining excess water of irrigation
 - D) Which controls water-logging
79. In Lacey's regime theory, the velocity of flow is proportional to
- A) Qf^2
 - B) Q/f^2
 - C) $(Qf^2)^{1/6}$
 - D) $(Q/f^2)^{1/6}$
80. What is the moisture depth available for evapotranspiration in root zone of 1 m depth soil, if dry weight of soil is 1.5 gm/cc, field capacity is 30% and permanent wilting point is 10% ?
- A) 450 mm
 - B) 300 mm
 - C) 200 mm
 - D) 150 mm
81. The moisture tension for a soil is 8 atmospheres. The soil is then at
- A) Permanent wilting point
 - B) Field capacity
 - C) Optimum moisture content
 - D) Equivalent moisture
82. A drainage coefficient
- A) Decides the choice of the method of the drainage
 - B) Decides the kind of crop that can be grown on the land
 - C) Is the depth of water that can be removed from the drainage area in unit time
 - D) Is the flow of water from the soil into the tile laterals per unit time
83. The yield of a well depends upon
- A) Permeability of soil
 - B) Area of aquifer opening into the wells
 - C) Actual flow velocity
 - D) All of the above
84. Mean precipitation over an area is best obtained from gauged amounts by
- A) Arithmetic mean method
 - B) Thiessen method
 - C) Linearly interpolated isohyetal method
 - D) Orographically weighted isohyetal method



85. Probability of a 10 year flood to occur at least once in the next 4 years
A) 25% B) 35% C) 50% D) 65%
86. The trap efficiency of a reservoir is a function of
A) Inflow into the reservoir
B) Ratio of inflow to storage capacity
C) Ratio of reservoir capacity to inflow
D) Reservoir capacity
87. The performance of a well is measured by its
A) Specific capacity B) Specific yield
C) Storage coefficient D) Permeability coefficient
88. A 6-hour rainstorm with hourly intensities of 7, 18, 25, 17, 11 and 3 mm/hour produced a runoff of 39 mm. Then the Φ -index is
A) 3 mm/hour B) 7 mm/hour C) 8 mm/hour D) 10 mm/hour
89. The Penman's evapo-transpiration equation is based on
A) Water budget method
B) Energy balance method
C) Mass transfer method
D) Energy balance and mass transfer approach
90. The discharge per unit drawdown at the well is known as
A) Specific yield B) Specific storage
C) Specific retention D) Specific capacity
91. Which one of the following flood routing methods involve the concepts of wedge and prism storages ?
A) Coefficient method B) Muskingum method
C) Paul's method D) Lag method
92. Which one of the following is a method of extending the length of record for a frequency curve at station ?
A) Double mass curve method
B) The station year method
C) Thiessen method
D) Isohyetal method



93. Kirpich equation is used to determine which one of the following ?
- A) Runoff from a given rainfall
 - B) Base time of a unit hydrograph
 - C) Time of concentration in runoff hydrograph
 - D) None of the above
94. For one dimensional flow without recharge in an unconfined aquifer between two water bodies the steady water table profile is
- A) A straight line
 - B) A parabola
 - C) An ellipse
 - D) An arc of a circle
95. The absolute pressure is equal to
- A) Gauge pressure – Atmospheric pressure
 - B) Gauge pressure – Vacuum pressure
 - C) Atmospheric pressure + Gauge pressure
 - D) Atmospheric pressure – Gauge pressure
96. The metacentric height of a floating body is the distance between
- A) Centre of gravity and centre of buoyancy
 - B) Centre of gravity and metacentre
 - C) Centre of buoyancy and metacentre
 - D) None of these
97. The relation among coefficient of discharge (C_d), coefficient of velocity (C_v) and coefficient of contraction (C_c) is
- A) $C_d = C_v + C_c$
 - B) $C_d = C_v - C_c$
 - C) $C_d = C_v / C_c$
 - D) $C_d = C_v \times C_c$
98. The loss of head due to sudden enlargement in a pipe is equal to
- A) $(V_1 - V_2)/2g$
 - B) $(V_1 - V_2)^2/2g$
 - C) $(V_1^2 - V_2^2)/2g$
 - D) $(V_1^2 + V_2^2)/2g$
99. A centrifugal pump gives maximum efficiency when its impeller blades are
- A) Ben forward
 - B) Bent backward
 - C) Straight
 - D) Wave shaped
100. Drag force on a cylinder for turbulent flow compared to laminar flow
- A) Same
 - B) More
 - C) Less
 - D) Very high
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SPACE FOR ROUGH WORK