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(Answer ALL questions)

56. In humid climate the average annual rainfall is
1. 40 cm
2. between 40 and 75 cm
3. More than 75 cm
4. Not less than 150 cm

57. Sheet erosion is dominant in
1. Arid region
2. Semi-arid region
3. Regions of moderate rainfall
4. Region of high rainfall

58. Which of the following is an item of inflow into a basin?
1. Precipitation
2. Evaporation
3. Transpiration
4. Evapo-transpiration

59. National arid zone research institute is located as
1. New Delhi
2. Jaipur
3. Jodhpur
4. Ahmedabad

60. In arid zones afforestation provides a mechanical obstacle to the free sweep of wind, reducing in the process
1. Wind velocity
2. Soil erosion
3. Evaporation from soil
4. All of the above

61. Sediment deposit in reservoirs can be reduced by
1. Avoiding reservoir sites which are prolific sources of sediment
2. Adopting soil conservation measures in the catchment area
3. Providing vegetative cover
4. All of the above

62. Which of the following statement is false?
1. The specific yield of an aquifer may be more than its porosity
2. Flow in a medium sand aquifer is entirely laminar
3. Plants usually extract water from the capillary zone
4. Storage co-efficient is the same as specific yield for a water table aquifer.

63. In India, the variability of rainfall is least in
1. Zones of high rainfall
2. Zones of low rainfall
3. Coastal areas
4. Hilly areas

64. When the dynamic viscosity of a fluid is 0.6 poise and specific gravity is 0.6, the kinematic viscosity of that fluid will be
1. 0.36 poise
2. 0.6 poise
3. 1 poise
4. None of the above

65. The separation of flow occurs
1. Due to reduction of pressure gradient to zero
2. Due to reduction of pressure gradient to negligibly low value
3. Under an adverse pressure gradient
4. When the hydrodynamic boundary layer thickness is reduced to zero

66. The viscosity of a fluid with specific gravity 1.3 is measured to be 0.0034 Ns/m^2. Its kinematic viscosity in m^2/s is
1. 2.6×10^{-6}
2. 4.4×10^{-6}
3. 5.8×10^{-6}
4. 7.2×10^{-6}

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67. Viscosity has dimensions of

1. $\frac{FT^2}{F}$
2. $\frac{F}{TL^2}$
3. $\frac{M}{LT^2}$
4. $\frac{M}{LT}$

68. The head loss in a pipe flow can be calculated by using

1. The Bernoulli equation
2. Darcy's law
3. The Chezy Manning equation
4. The Darcy Weisbach equation

69. Which one of the following soils may be expected to have higher percentage of silt?

1. Clay
2. Sand clay
3. Sand
4. Silty clay loam

70. A fibrous mass of organic matter in various stages of decomposition generally dark brown to black in colour and of spongy consistency, is known as

1. Murrum
2. Peat
3. Black expansive soil
4. Back fill

71. When water content in a soil is reduced beyond the shrinkage limit, the soil will be in a

1. Solid state
2. Liquid state
3. Semi solid state
4. Plastic state

72. Which soil remains at the place of integration of parent rock?

1. Residual soil
2. Lacustrine soil
3. Aeolian soil
4. Alluvial soil

73. The uniformity coefficient of soil is

1. $\frac{D60}{D10}$
2. $\frac{D30}{D10}$
3. $\frac{D60}{D30}$
4. $\frac{D60}{D30xD10}$

74. The ratio of volume of irrigation water stored in the root zone and available for plant to the volume delivered from irrigation system is called

1. Irrigation water use efficiency
2. Water conveyance efficiency
3. Water use efficiency
4. Irrigation application efficiency

75. The appearance of 'yellow colour' in soil is due to presence of

1. Hematite
2. Silicates
3. Limonite
4. Quartz

76. Which soil water is not available for plant growth?

1. Capillary water
2. Gravitational water
3. Hygroscopic water
4. Perched water

77. The irrigation method suitable for cotto potatoes etc is

1. Border strip method
2. Furrow method
3. Basin method
4. All of them

78. Maximum water application efficiency is in

1. Surface irrigation
2. Lift irrigation
3. Sprinkler irrigation
4. Furrow irrigation

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79. The ratio of total volume of water delivered to a crop to the area on which it has been spread is called
1. Critical depth
2. Duty
3. Delta
4. Crop water depth

80. A cross drainage work which carries a canal over a channel without lowering the bed level of the channel is called
1. Aquaduct
2. Hybrid channel
3. Super passage
4. Siphon

81. The weed growth in canal
1. Reduces silting
2. Reduces discharge through the canal
3. Increases the velocity of flow
4. Increases the contamination of water

82. Evapo-transpiration is
1. Water equivalent to moisture contained in air which is lost through evaporation
2. Unaccounted loss of water by evaporation at a location
3. Evaporation from plants in a catchment area
4. The total evaporation and transpiration from the catchment area

83. _____ is used to find the water activity of a heterogeneous mixture of food.
1. Salwin Slawson equation
2. BET isotherm equation
3. GAB isotherm equation
4. Rault's law

84. Gasification of biomass is a
1. Biochemical conversion process
2. Thermo chemical conversion process
3. Hydro chemical conversion process
4. Geochemical conversion process

85. The value of solar constant is approximately _____ kW/m^2.
1. 3.64
2. 10
3. 1.36
4. 6.5

86. Wellner – Jelliner method is adopted in
1. Freezer
2. Evaporator
3. Separator
4. Mixer and blender

87. Quantitative Microbial Risk Analysis
1. Analyses health risks associated with contaminated drinking water
2. Analyses environmental flow
3. Analyses river water
4. Analyses health risks associated with waste water use in agriculture

88. The specific heat of a grain at 12% m.c. wb whose specific heat at absolute dry condition is 0.42 will be _____ kcal / kg °C.
1. 0.472
2. 0.372
3. 0.572
4. 0.742

89. Gable type is a _____ that is more suitable for rainfall areas.
1. Hog house
2. Stanchion barn
3. Poultry house
4. Fish pond

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90. 100 kg of milk with 7.5% fat content was fed into a cream separator and the cream obtained was 14.1 kg with 52.5% fat. The skimming efficiency of the cream separator is
1. 78.9%
2. 87.9%
3. 97.8%
4. 98.7%

91. Milk obtained by adding water, skimmed milk powder to the whole milk to get 3% fat and 8.5% SNF is called
1. Homogenized milk
2. Toned milk
3. Standardized milk
4. Reconstituted milk

92. The unit draft when a pair of bullocks pulls a plough with 85 kg draft at 3 kmph to make a furrow of 20 cm wide and 11 cm deep will be
1. 0.863 ksc
2. 0.944 ksc
3. 0.386 ksc
4. 0.386 psi

93. The ratio of Effective field capacity to Theoretical field capacity is called
1. Machine efficiency
2. Field efficiency
3. Custom efficiency
4. Mechanical efficiency

94. The total draft required for a plough is measured by
1. Dynamometer
2. Chartometer
3. Speedometer
4. Pyrometer

95. In a tyre size of 10 × 38, 10 represents
1. Cross-sectional diameter in inches
2. Rim diameter in inches
3. Pressure of tyre in psi
4. Pressure of tyre in ksc

96. A fan running at a speed of 473 rpm and delivering 14850 cub ft /min requires 3.18 HP. If the fan is to run at 537 rpm and deliver 16850 cub ft / min, the HP required is
1. 6.45
2. 4.65
3. 4.56
4. 5.64

97. The angles of intersection of two plane mirrors of an optical square is
1. 15°
2. $22\frac{1}{2}°$
3. 30°
4. 45°

98. Hour system is mostly used in
1. Geological survey
2. Astronomy
3. Navigation
4. (2) and (3) above

99. The total depth of irrigation to crop
1. Delta
2. Base
3. Intensity of irrigation
4. None of the above

100. The volume of water discharged per unit time from the well is called
1. Capacity of well
2. Well yield
3. Well stock
4. None of the above

101. Which of the following is low volume sprayer
1. Gear type rotary pump
2. Roller vane rotary pump
3. Plunger pump
4. All of the above

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102. Which of the following statements is correct regarding transpiration?
1. It creates suction force and help in the ascent of sap
2. It affects the diffusion pressure deficit
3. It maintains the temperature for the leaves
4. All of the above

103. Which one used for primary tillage?
1. Hand hoe
2. Deshi plough
3. Mould board plough
4. Blade harrow

104. The single cylinder engine is generally used in
1. Tractor
2. Stationery tillage
3. Motor cars
4. Power tiller engine

105. Junker's calorimeter is used for determining the calorific value of
1. Liquid fuels
2. Solid fuels
3. Gaseous fuels
4. None of these

106. Detonation refers to the
1. Engine Knocking
2. Engine speed
3. Engine efficiency
4. None of the above

107. In tractor engines, a commonly used thermostat valve is
1. Bimetallic type
2. Bellows type
3. Both (1) and (2) type
4. None of these

108. A mould board plough which is suitable for ploughing along hill sides is
1. One-way plough
2. Two way plough
3. Both (1) and (2) above
4. Three way plough

109. An undisturbed soil surface of a furrow is
1. Furrow slice
2. Furrow wall
3. Furrow crown
4. Furrow back

110. Sweeps are used for
1. Seedbed preparation
2. Ridging
3. Earthing plants
4. Mulching

111. In power operated sprayer, the pump works at a pressure of
1. 2–5 kg/cm^2
2. 3–8.5 kg/cm^2
3. 4–12 kg/cm^2
4. 5–15 kg/cm^2

112. The operating speed of combine harvester varies within a range of
1. 600–800 rpm
2. 900–1000 rpm
3. 600–1400 rpm
4. Above 1500 rpm

113. Gully erosion is the advance stage of
1. Splash erosion
2. Sheet erosion
3. Rill erosion
4. All are correct

114. Grassed waterways are used as
1. Diversion channels
2. Outlets
3. Inlet to terrace system
4. Inlet

115. Present tractor population in India is around
1. 1 million
2. 1.5 million
3. 2.5 million
4. More than 3.5 million