Agricultural Engineering Paper-1 (200 marks)

1. Arrangement and state of aggregation of soil particles in soil mass refer to
   a) Soil texture b) Soil Structure c) Soil compressibility d) Soil shrinkage
   Ans: b) Soil Structure

2. Downward and lateral movement of water inside the soil and its sub strata is referred as
   a) Seepage b) percolation c) effluent flow d) influent flow
   Ans: a) Seepage

3. Force responsible for creating soil moisture tension is
   a) Cohesion b) Adhesion c) surface tension d) Adhesion and Cohesion
   Ans: d) Adhesion and Cohesion

4. The useful soil moisture for plant growth is equal to ….
   a) Field Capacity
   b) Saturation Capacity
   c) Difference between Field Capacity and Permanent Wilting Point within root zone of plants.
   d) Permanent Wilting Point
   Ans: c) Difference between Field Capacity and Permanent Wilting Point within root zone of plants.

5. An unsaturated soil contains
   a) Two phase system ie. solid and liquid
   b) One phase system ie. solid
   c) Three phase system ie. solid, liquid and gas
   d) None of the above
   Ans: c) Three phase system ie. solid, liquid and gas

6. Below water table, soil water pressure is
   a) Positive
   b) Negative
   c) Atmospheric
   d) None of the above
   Ans: a) Positive

7. Capillary water held at pressure
   a) 60 atm
   b) 1/3 to 15 atm
   c) 1/3 to 31 atm
   d) 1/10 to 1/3 atm
   Ans: c) 1/3 to 31 atm

8. In salt affected soils the soil moisture stress to be exerted by the plant for water uptake is
   a) Soil Moisture Tension+ Osmotic Pressure
   b) Osmotic Potential
   c) Soil Matrix Suction-Osmotic Suction
   d) None of the above

Ans: a) Soil Moisture Tension+ Osmotic Pressure

9. The most desirable soil structure is
   a) Massive structure
   b) Compound structure
   c) Single grain structure
   d) Granular structure

   Ans: d) Granular structure

10. Tensiometer can effectively measure soil moisture tension in the range of
    a) 0 to 1 atm
    b) < 0.8 atm
    c) 0 to 15 atm
    d) 15 to 33 atm

    Ans: b) < 0.8 atm

11. Size of silt and clay particles (mm) of soil are
    a) 0.02 to 0.002, >0.002
    b) 0.02 to 0.002, <0.002
    c) 0.2 to 0.02
    d) None of the above

    Ans: b) 0.02 to 0.002, <0.002

12. The recommended safe limits of land slope in loamy soils range from
    a) 0.01 to 0.05 %
    b) 0.05 to 0.1 %
    c) 0.1 to 0.2 %
    d) 0.1 to 0.5 %

    Ans: c) 0.1 to 0.2 %

13. The flow velocity in unsaturated soil varies as
    a) 2^{nd} power of capillary radius
    b) 4^{th} power of capillary radius
    c) 4^{th} power of capillary diameter
    d) None of the above

    Ans: b) 4^{th} power of capillary radius

14. The term dry bulk density is often used as
    a) Apparent specific gravity
    b) Specific gravity
    c) Particle density
    d) None of the above

    Ans: a) Apparent specific gravity

15. A plant root extracts maximum water from
    a) 1^{st} quarter of root zone depth
    b) 2^{nd} quarter of root zone depth
    c) 3^{rd} quarter of root zone depth
    d) 4^{th} quarter of root zone depth

Ans: a) 1st quarter of root zone depth

16. In general, the major component of water requirement of crops is
    a) Pre-sowing irrigation
    b) Evapo-Transpiration
    c) Leaching Requirement
    d) Deep percolation
    Ans: b) Evapo-Transpiration

17. The most commonly used empirical formulae for estimating evapo-transpiration, namely, Blaney-Criddle method, Thornthwaite method and the Hargreaves method have been calibrated for
    a) Daily calculations
    b) Hourly calculations
    c) 10 days and monthly calculation
    d) Seasonal calculations
    Ans: c) 10 days and monthly calculation

18. Amongst the four distinct growth stages of seasonal crops the maximum value of crop co-efficient Kc is during
    a) Initial stage
    b) Crop Development stage
    c) Mid season stage
    d) Late season stage
    Ans: c) Mid season stage

19. Consumptive Use includes
    a) Deep percolation water loss
    b) Evapo-Transpiration plus water used by plant metabolic mechanism
    c) Evapo-Transpiration plus water lost under deep percolation
    d) None of the above
    Ans: b) Evapo-Transpiration plus water used by plant metabolic mechanism

20. Transpiration loss from plant occurs in
    a) Daylight hours
    b) Night hours
    c) Both Daylight and night hours
    d) None of the above
    Ans: a) Daylight hours

21. One cumec of water is pumped into a farm distribution system and 0.8 cumec is delivered to a turnout, 0.9 km from the well. Conveyance efficiency will be
    a) 85 %
    b) 80%
    c) 75%
    d) None of the above
    Ans: b) 80%

22. The ratio of crop yield (y) to the amount of water depleted by the crop in the process of evapo-transpiration is known as….
    a) Field water use efficiency
    b) Water application efficiency
    c) Conveyance efficiency
    d) Crop water use efficiency
    Ans: d) Crop water use efficiency

23. The number of days between two consecutive irrigations during periods without rainfall is refer as
    a) Irrigation frequency
    b) Irrigation period
    c) Base period
    d) Crop period
    Ans: a) Irrigation frequency

24. The amount of irrigation water required to bring the soil moisture level in the effective root zone to field capacity is the
    a) Net irrigation requirement
    b) Gross irrigation requirement
    c) Irrigation requirement
    d) None of the above
    Ans: a) Net irrigation requirement

25. The soil column occupied by the root system of plants is known as
    a) Soil profile
    b) Rhizosphere
    c) Soil Horizon
    d) Water table
    Ans: **b) Rhizosphere**

26. The relationship between quantity of water used and irrigated area of the matured crop is
    a) Delta
    b) Duty
    c) Base period
    d) Crop Period
    Ans: b) Duty

27. A sheet of water , which overflows a weir is called as
    a) Head
    b) Nappe
    c) Crest
    d) Notch
    Ans: b) Nappe

28. The dimensions of intrinsic permeability is
    a) L
    b) T
    c) L/T

d) L^2

Ans: d) L^2

29. At critical flow condition, the specific energy is minimum and discharge is
    a) Maximum
    b) Minimum
    c) Alter
    d) No change

    Ans: a) Maximum

30. Reynold number is defined as the ratio of
    a) Inertia to gravity force
    b) Inertia to viscous force
    c) Inertia to elastic force
    d) Viscous to Inertia force

    Ans: b) Inertia to viscous force

31. Gauge pressure=absolute pressure -……..
    a) Vacuum pressure
    b) Atmospheric pressure
    c) Hydrostatic pressure
    d) None of the above

    Ans: b) Atmospheric pressure

32. The conditions for best hydraulic rectangular and trapezoidal channel are
    a) b=d/2 , b=2d tan (Θ/2)
    b) d=b/2, d=2b tan (Θ/2)
    c) b=d/2, d= 2b tan (Θ/2)
    d) d=b/2, b=2d tan (Θ/2)

    Ans: d) d=b/2, b=2d tan (Θ/2)

33. If the major part or entire ponding of water is achieved by the raised crest and smaller part or nil part of it is achieved by the shutters then this barrier is known as
    a) Barrage
    b) Afflux
    c) River regulator
    d) Weir

    Ans: d) Weir

34. Triangular cross section of irrigation is used for discharges
    a) Large discharges
    b) Medium discharges
    c) Small discharges
    d) None of the above

    Ans: c) Small discharges

35. The ratio of the rate of change of discharge through the outlet to the rate of change of water level of the distributary referred to normal depth of the channel is known as

a) Proportionality
b) Setting
c) Flexibility
d) Sensitivity

Ans: d) Sensitivity

36. The Cipolleti weir is a contracted trapezoidal weir having side slope
    a) 4:1
    b) 1:2
    c) 1:3
    d) 1:4

    Ans: d) 1:4

37. When Froude number is $F_{1=}$ 4.5 to 9, the hydraulic jump is called as
    a) Steady jump
    b) Oscillating
    c) Strong jump
    d) Turbulent

    Ans: a) Steady jump

38. The most efficient cross section of channel is
    a) Rectangular
    b) Trapezoidal
    c) Semi- Circular
    d) Triangular

    Ans: c) Semi- Circular

39. The principle of working of a meter gate is
    a) Free flow rectangular orifice
    b) Free flow circular orifice
    c) Submerged flow circular orifice
    d) Submerged flow rectangular orifice

    Ans: b) Free flow circular orifice

40. In measuring the rate of flow in irrigation canals using current meters, the measurements are taken at two locations below the water surface and the average of the two values provides an estimate of the average rate of flow. To obtain fairly accurate results the measurement points are located at ……..
    a) 0.1 and 0.9 of the depth of flow
    b) 0.3 and 0.7 of the depth of flow
    c) 0.2 and 0.8 of the depth of flow
    d) 0.4 and 0.6 of the depth of flow

    Ans: c) 0.2 and 0.8 of the depth of flow

41. The depth of flow over a sharp crested rectangular weir should not be more than about ….
    a) half the crest width
    b) two-thirds of the crest width

c) three-fourth of the crest width
d) the width of the weir

Ans: b) two-thirds of the crest width

42. The passage of a flood wave in a river is the case of
a) unsteady gradually varied flow
b) unsteady-uniform flow
c) unsteady rapidly varied flow
d) steady-uniform flow

Ans: c) unsteady rapidly varied flow

43. Manning's roughness co-efficient is directly proportional to
a) relative roughness
b) particle size
c) flow velocity
d) surface clope

Ans: a) relative roughness

44. When the flow under super critical condition changes into subcritical condition, the hydraulic phenomena lead to
a) Hydraulic drop
b) Eddies formation
c) Hydraulic jump
d) None of the above

Ans: c) Hydraulic jump

45. In non-vegetated borders, the hydraulic resistance is expressed as

a) Darcy's Weisbachretardence co-efficient
b) Chezy's constant
c) Manning's roughness co-efficient
d) Friction factor

Ans: a) Darcy's Weisbachretardence co-efficient

46. Bernoulli's equation is applicable only for _____

a) Irrotational flow

b) Viscous flow

c) Inviscid, incompressible flow

d) Compressible flow

Ans: c) Inviscid, incompressible flow

47. Under land grading work, the depth of cut should not exceed

a) 15 cm
b) 50 cm
c) 35 cm
d) 40 cm

Ans: a) 15 cm

48. The permissible depth of earth work under land leveling work is about:

(a) ±3 cm

(b) ± 5 cm

(c) ±7 cm

(d) ±9 cm

Ans:- (a) ±3 cm

49. If irrigation water diverted to field is 10 m, and runoff and other losses is 2 m and 1 m respectively. The application efficiency is

a) 60%

b) 70%

c) 80%

d) 90%

Ans: b) 70%

50. Which formula is used for measuring discharge through sprinkler nozzle

a) Cavazza

b) Tanda

c) Darcy

d) Torricelli

Ans: d) Torricelli

51. Operating pressure (kg/cm^2) of low to medium sprinkler is

a) Less than 0.5

b) More than 4.2

c) 1.4 to 4.2

d) 0.5 to 1.2

Ans: c) 1.4 to 4.2

52. "Super passage" in canal irrigation system refers to

a) Irrigation channel passes over drainage channel

b) Drainage channel passes over Irrigation channel

c) Both a and b

d) Divert water to channel

Ans: b) Drainage channel passes over Irrigation channel

53. Hydrant is a type of

a) Riser valve

b) Suction valve

c) Discharge valve

d) None of the above

Ans: a) Riser valve

54. For a channel cross section and discharge the specific energy in a channel section is a function of

a) Velocity only

b) Depth of flow and velocity

c) Depth of flow only

d) None of the above

Ans: c) Depth of flow only

55. PIM refers to

a) Program of Integrated Management

b) Participatory Irrigation Management

c) Pressure Irrigation Management

d) Private Irrigation Management

Ans: b) Participatory Irrigation Management

56. In drip irrigation design, the design criteria is generally based on an emitter flow variation of

a) < 20%

b) >20%

c) <5%

d) <10%

Ans: a) < 20%

57. The discharge rate of drip irrigation usually ranges from

a) 2-10 litre/day

b) 2-10 litre/hr

c) 2-10 litre/min

d) 2-10 litre/sec

Ans: b) 2-10 litre/hr

58. The appropriate device for measurement of flow in irrigation furrows is

a) Dethridge meter

b) V-notch weir

c) Portable Parshall flume

d) Submerged orifice

Ans: c) Portable Parshall flume

59. The most appropriate mechanically operated equipment for medium scale land grading and smoothing is

a) Terrace blade

b) Land plane

c) Two-wheeled automatic leveller

d) carrier-type scraper

Ans: c) Two-wheeled automatic leveller

60. The size of the furrow stream usually varies from

a) 0.1 to 0.5 litres/sec

b) 0.5 to 2.5 litres/sec

c) 0.5 to 1.0 litres/sec

d) 1 to 2 litres/sec

Ans : b) 0.5 to 2.5 litres/sec

61. Archemedian screw is suitable to lift water from open water bodies to height ranging from

a) 1.2 to 3 m

b) 0.5 to 1.2 m

c) 2 to 3 m

d) 4 to 5 m

Ans: b) 0.5 to 1.2 m

62. The vertical distance between the advance and recession curves at the given point is

a) Depth of flow

b) Irrigation slope

c) Time of ponding

d) Advance distance

Ans: c) Time of ponding

63. The method of surface drainage which makes use of dead furrows is

a) Bedding

b) Tile drain

c) French drain

d) mole drain

Ans: a) Bedding

64. Uniformity co-efficient for gravel envelops is the ratio of

a) D60 base / D60 filter

b) D40 base / D50 filter

c) D60 filter / D60 base

d) All of the above

Ans: c) D60 filter / D60 base

65. Water saving to the tune of ……..percent is possible in drip irrigation system

a) 20 to 40

b) 10 to 30

c) 80 to 90

d) 30 to 70

Ans: d) 30 to 70

66. Which of the following is also called as media filter

a) screen

b) disc

c) clay

d) sand

Ans: d) sand

67. In case of hilly terrain, the lateral should be laid

a) along the slope

b) along the contour

c) across the contour

d) along the grade

Ans: b) along the contour

68. Which filter is compulsory for every drip irrigation system?

a) Gravel

b) Sand

c) Screen

d) Hydro-cyclone

Ans: c) Screen

69. Uniformity Co-efficient is expressed by the equation developed by

a) Christiansen

b) Pillsberry

c) Darcy

d) Cavazza

Ans: a) Christiansen

70. The IW/CPE approach is preferred mostly for …… irrigation method

a) Drip

b) Sprinkler

c) Surface

d) Bubbler

Ans: c) Surface

71. The hygroscopic water is held at …….. atmospheric tension

a) 1/3

b) 31

c) >10000

d) 31 to 10,000

Ans: d) 31 to 10,000

72. A localized water body above the water table in an unconfined aquifer is known as

a) Confined aquifer

b) Unconfined aquifer

c) Perched aquifer

d) Artesian aquifer

Ans: c) Perched aquifer

73. An imaginary surface obtained by joining the water levels in several observation wells penetrating a confined aquifer is called

a) phreatic surface

b) piezometric surface

c) capillary fringe

d) water table surface

Ans: b) piezometric surface

74. Hydraulic resistance is a property of

a) Confined aquifer

b) Unconfined aquifer

c) Artesian aquifer

d) Semi-pervious layer

Ans: d) Semi-pervious layer

75. The radius of influence is the horizontal distance between the centre of the pumped well and ……

a) The first observation well

b) The last observation well

c) a point on the cone of depression of zero drawdown

d) a point on the cone of depression of maximum drawdown

Ans: c) a point on the cone of depression of zero drawdown

76. The Dupuit's assumptions for unconfined flow state the velocity of flow is proportional to the

a) Sine of hydraulic gradient

b) Cosine of hydraulic gradient

c) Tangent of hydraulic gradient

d) Cotangent of hydraulic gradient

Ans: c) Tangent of hydraulic gradient

77. In a fully penetrating well in confined aquifer depth of the observation well should be upto

a) Top of the well screen

b) Centre of the well screen

c) Bottom 2/3rd of the well screen

d) Bottom of the well screen

Ans: b) Centre of the well screen

78. Which of the following geologic materials would make the best aquifer?

a) Well-sorted sands

b) Well-sorted gravel

c) poorly-sorted sands

d) poorly-sorted gravel

Ans: b) Well-sorted gravel

79. The permeability of an aquifer is proportional to …… of effective grain size, d_{10}, for same uniformity co-efficient, C_u

a) square root

b) cube root

c) cube

d) square

Ans: d) square

80. Water quantity pumped per unit drawdown is called ……

a) Well yield

b) Specific capacity

c) Co-efficient of storage

d) All of the above

Ans: b) Specific capacity

81. The most suitable equipment for well drilling in a hard rock areas is

a) Reverse rotary drilling

b) Direct rotary drilling

c) Cable tool drilling

d) Down-the-hole air rotary drilling

Ans: d) Down-the-hole air rotary drilling

82. The optimum length of a well screen for a tube well in a confined aquifer should extend to

a) Full depth of the aquifer

b) 50-60% of the depth of the aquifer

c) 60-70% of the depth of the aquifer

d) 70-80% of the depth of the aquifer

Ans: d) 70-80% of the depth of the aquifer

83. For optimum performance, the percent submergence of an air lift pump is ……

a) 50 %

b) 60 %

c) 70 %

d) 80%

Ans: b) 60 %

84. Diameter of dug well in an unconsolidated formation varies from

a) 2 to 5 m

b) 5 to 8 m

c) 8 to 10 m

d) 10 to 15 m

Ans: a) 2 to 5 m

85. For an efficient well, the percent open area of well screen should be ……..

a) Less than 5%

b) 5-10%

c) 15-20%

d) About 25 %

Ans: b) 5-10%

86. To retain 90% of gravel pack materials, the slot size of screen should be equal to

a) d_{90} of pack materials

b) d_{60} of pack materials

c) d_{10} of pack materials

d) d_{50} of pack materials

Ans: c) d_{10} of pack materials

87. When the speed of a centrifugal pump is changed the head varies as ……

a) Square root of the speed

b) Square of the speed

c) Cube of the speed

d) Cube root of the speed

Ans: b) Square of the speed

88. The system head curve of a pump indicates the …….

a) friction loss of the system

b) liquid velocity in the system

c) total head required by the system

d) brake horse power of the motor

Ans: c) total head required by the system

89. Most hydraulic rams works at the best efficiency if the lift magnification ratio is limited to

a) 8:1

b) 4:1

c) 12:1

d) 24:1

Ans: b) 4:1

90. Reciprocating pumps are also called as

a) Centrifugal pump

b) Submersible pump

c) Piston pump

d) All of the above

Ans: c) Piston pump

91. As number of stages for a particular centrifugal pump is increased, the head capacity curve became

a) flatter

b) More convex

c) More concave

d) Steeper

Ans: d) Steeper

92. The field capacity of a soil is 25%,its permanent wilting point is 15% and specific dry unit weight is 1.5 . If the depth of root zone of a crop is 80 cm. The available moisture of a soil is

a) 8 cm

b) 10 cm

c) 12 cm

d) 14 cm

Ans: c) 12 cm

93. Electrical Conductivity of a soil solution is a measure of ……..

a) Soil Dryness

b) Clay content of soil

c) Soil Iron Content

d) Soil Salinity

Ans: d) Soil Salinity

94. The drainage density is the

a) Stream discharge per unit drainage area

b) Drainage area per unit stream length

c) Average length of streams per unit drainage area within basin

d) Number of streams per unit drainage area

Ans: c) Average length of streams per unit drainage area within basin

95. In ground water flows, Darcy's law is generally applied because

a) Ground water flow cannot be estimated correctly by other existing formula

b) Ground water flow has very high Reynold's number

c) Ground water flow, being very slow, thus has very less Reynold's number

d) Ground water flow is very fast

Ans: c) Ground water flow, being very slow, thus has very less Reynold's number

96. Dryness of drainage area is indicated by

a) AMC 1

b) AMC 11

c) AMC 111

d) AMC 1V

Ans: a) AMC 1

97.The depth of water in centimetres drained off from a given area in 24 hours.

a) Specific storage

b) Hydraulic conductivity

c) Storage co-efficient

d) Drainage co-efficient

Ans: d) Drainage co-efficient

98. For faster salt removal from the root zone of agricultural lands, the best option is

a) Surface drainage

b) Bio-drainage

c) Sub-surface drainage

d) Vertical drainage

Ans: c) Sub-surface drainage

99. Liquid limit is determined in

a) Core Sampler

b) Hein's apparatus

c) Pressure plate apparatus

d) Casagrande's apparatus

Ans: d) Casagrande's apparatus

100. If LR is leaching requirement and IR is irrigation requirement, then

a) LR=IR

b) LR=2 IR

c) LR>IR

d) LR/IR <1

Ans: d) LR/IR <1

Bolded represents the answer

1.) The antecedent moisture condition (AMC Il) represents a soil moisture condition which is

(a) **average** (b) below average

(c) above average (d) saturated

2.) The Dickens formula is used for determination of

(a**) peak discharge**(b) monthly runoff

(c) periodic runoff (d) none of these

3.The flood routing by hydrologic method is based on the

a. energy equation (b) equation of motion

(c) **equation of continuity** (d) momentum and continuity equation

4.The contour cultivation is most effective on slope

a. Less than 2% b. 10-15%

c. 15-20%. d. **2-7%**

5.Chemical most suitable for evaporation inhabitation is

a. **Cethyl alcohol**. b. Steryl alcohol

c.Ethyl alcohol. d. Methyl alcohol

6.Drop spillway is applicable for the drop height of

Less than 3m. more than 3m

Upto 6m. 3-10m

7. The area under hyetograph represents
Total rainfall intensity. **Total rainfall amount**
Direct runoff. Effective rainfall

8. Hill type bench terrace is used for which type of soil
Deep shallow
Medium **none**

9.Return period of temporary vegetated grassed waterways and diversion ditch are

10yrs. 25 yrs
20yrs. 50yrs

10.Mulching is used for

Conserving soil moisture
Preventing soil compaction
Protection crop from insects
Ensuring good germination

11.In india daily rainfall readings are collected during which time of the day?
8.30 a.m. 9.30 am
11.30 am. 4.00 pm

12.The most wind erosion prone state in the country is

Gujarat. Punjab
UP. **Rajasthan**

13.Location of permanent gully control structure is decided on the basis of
Gully depth gully width
Gully bed slope. All

14.Freeboard is provided to accommodate the embankment height against

Overtopping Overturning
Sliding. All

15.The apron length in masonry dam should

Not less than 1.5 times the dam height
Less than 1.5 times the dam height
Equal to 1.5m the dam height
¾ of dam height

16.The thickness of apron/stilling basin is decided based on

Uplift pressure. eccentricity
Frictional forces none

17.The limit of slope length at which soil erosion begins
Optimum slope length
Critical slope length
Allowable slope length
None
18.Soil detachment by raindrop is independent of
Land slope. **Soil colour**
Soil depth. Soil texture

19.Rill erosion usually begins in the
Lower part of land slope
Upper part of land slope
Middle of land slope
Entire length of land slope

20.Soil detachment in raindrop erosion takes place due to
K.E of raindrop. Running flow
P.E of raindrop. Land slope

21.Organic erosion occurs in the form of
Phytogenic erosion. Zoogenic erosion
Attrition. **Both a &b**

22.The average rainfall in india is about
1194mm. 1384mm
1391mm. 1491mm

23.Stage -3 gully development refers to

Healing stage Stabilizes stage
Initial stage. Development stage

24.The most economical section of grass water way is

Parabolic. Towards outlet
Triangular. Rectangular

25.Greater soil erosion is observed in case of

Soil surface covered by plant canopy
Soil surface under grass cover
Soil surface forest cover
Soil surface cultivated crop

26.The purpose of cut-off walls in drop structure is to

Provide structural strength against sliding
Spill the flow safely
Dissipate K.E of flow
Support gully walls

27.Design of inlet section of drop structures is done by using

Weir formula. Flume formula
Orifice formula. Darcy's formula

28.The universal Soil loss equation, primarily developed for small watersheds estimates

Permissible annual soil loss
Maximum annual soil loss
Average annual soil loss
Minimum permissible annual soil loss

29.Shelter belts are most effective, if installed

At an angle of 45 from the prevailing wind direction
At an angle more than 90 from the prevailing wind direction
Parallel to the prevailing wind direction
Perpendicular to the prevailing wind direction

30.Graded bunds are used in

Low rainfall areas for soil conservation
Low rainfall areas for water conservation
Low rainfall areas for soil and water conservation
Relatively high rainfall areas for safe removal of excess rainfall

31.During wind erosion, the maximum amount of soil removal is due to

Sheet **saltation**
Surface creep shifting

32.On increment of land slope 4 times, the transportation of particles increased by
4 times 8 times
16 times **32 times**

33.Rill erosion is the

Advance stage of gully formation
Initial stage of gully formation
Stabilized stage of gully formation
Healing stage of V-shaped gully

34.Temporary check dams are used for controlling run-off and erosion especially in

Small and medium size gullies
Small gullies only
Medium gullies only
Larger gullies

35.In hydraulic jump, the flow depth is

Reduced. **Increased**
Normal depth. None

36.Thickness of stilling basin is decided based on

Uplift pressure acting on it. Eccentricity of all forces
Frictionless forces. None

37.The length of wooden jack to be used generally varies from
3 to 5 m. 10 to 12 m
15 to 20m. 20 to 25 m

38.Stone revetment for control of stream bank erosion is recommended for the situation of
Sharp bend in stream
Stream bank not subject to swift current
Bed scoring by concentrated stream flow
None

39.The term sand dune is associated to

Wind erosion glacial erosion
Accelerated erosion. Tunnel erosion

40.Wind velocity will be higher at
Ground surface
5m height from ground
10m height from ground
50m height from ground

41.In surface creep process the transportation of soil particle varies from
7 to25%. 3 to 38%
55 to 72%. 80 to 90%

42.Sand dunes formed by single directional moving wind are called as

Crescent dunes. Linear dunes
Pyramidal dunes. None

43.Wind breaks are composed of
Maximum 2 rows of vegetative or non vegetative materials
One row of vegetative materials
2 rows of non- vegetative materials
1 row of non- vegetative materials

45.The water year in india from the first day of

January April
June. May

46.Maximum limits of raindrop diameter and terminal velocity are

5mm & 9m/s **6mm & 9m/s**
9mm& 5m/s none

47.The density of moderate dense shelter belt varies from

40 to 50%. 15 to 20%
30 to 40%. 10 to 12%

48.In coastal areas the shelter belts can be raised maximum upto

30rows**.** **20 rows**
10 rows. 15 rows

49.Erosivity is the function of

Terminal velocity of rainfall. **Rainfall intensity**
Drop size drop size distribution

50.A raindrop causes maximum detachment of soil particles, when it strikes the particle at

120 from horizontal **90 from horizontal**
30 from horizontal 60 from horizontal

51.Spacing of contour lines for cultivation varies from

25 to 33m. 10 to15m
50 to 75m. 100 to 150m

52.The soil loss rate from agricultural lands in india is about:
6-8 t/ha/yr
10-12 t/ha/yr
20-30 t/ha/yr
80-100 t/ha/yr

53.In M.k.s system unit of runoff is

Cubic meter/sec
Meter/sec
Cubic meter
All

54.Which of the following types of rain gauges is used for measuring in remote hilly inaccessible areas?

Tipping bucket type
Weighing type
Floating type
None

55.Levees are designed for the return period of

50yrs 25yrs
10yrs 15 yrs

56.The most suitable material for the central impervious core of a zoned embankment type dam is

Clay
Coarse sand
Silt clay
Clay mixed with fine sand

57.A saline soil has:
pH> 8.5
pH< 8.5
pH in range of 8.5 to 10.5
both b and c

58.A best site for pond construction is

N**arrow valley with steep sides**
A clay formation
A depressed part with pervious layer below
All above

59.The value of elongation ratio of watershed varies from

0.4 to 1 2 to 3
1.5 to 2. 4 to 4.5

60.Streams that carry seasonal water with limited ground water contribution are called

Perennial streams
Ephemeral streams
Intermittent streams
Biannual streams

61.In horizontal axis type of stage recorders, the chart is wrapped around
A drum a straight rod
A clock gear. Two rollers

62.The inward slope of bench terrace is in the range of
1-5 %. 5-10%
2-10%. 8-20%

63. Water harvesting primarily means
Collecting and preservation of rainwater
Harvesting water from drains
Diverting water to rivers
Removal of excess water from fields

64. seepage line is similar to

An ellipse
A parabola
A straight line
A hyperbola

65. a channel with minimum specific energy is called

Critical flow. Ideal flow
Uniform flow. None

66. which material is not used for making rollers?

Wood stone
Iron. **Steel**

67.stream bank erosion is caused due to

Scouring from stream bank
Undermining
Sloughing
All above

68.the best unit duration of storm for a unit hydrograph is

1 hour
One- fourth of basin lag
One-half of basin lag
Equal to basin lag

69.the mechanical measures for soil conservation are considered as
First line of defence
Second line of defence
Substitute of soil loss control
None of above

70. California bench terrace is also called as
Puertorican type terrace
Hill type terrace
Paddy type terrace
Orchard type terrace

71.for a uniform graded terrace, the minimum recommended grade is used as

0.4%. **0.1%**
1% 2%

72.the topographic factor affecting sediment -delivery ratio is
Steepness of land
Length of land slope
Drainage density
All above

73.Homogeneous earth dams are constructed for
Low height greater height

20 to 30m 50m

74. an isotropic soil contains
Same permeability in horizontal direction
Same permeability in vertical direction
Same permeability in all direction
Zero permeability

75.an equipotential line represents the contour of
Head
Energy
Potential
All above

76. Iso-tangent indicates joining lines of equal
Pressure
Time
Slope
Wind velocity

77.Bunds constructed between two contour bunds to limit the horizontal spacing are
Marginal bunds
Supplementary bunds
Side bunds
Horizontal bunds

78.the batter slope of terrace is vertical in
Sandy soil
Stiff and stable soil
Loose soil
None

79. an influent stream is due to
River crossing a desert area
Effluent stream seepage from basin
Ground water table being above the bed
Base flow

80.the land degradation refers to
Worse change in land resources
Occurrence of land side
Temporary or permanent declination in productive potential of land
All above

81. Average pan coefficient of ISI standard pan is
0.50
0.80

0.70
0.55

82. Venturimeter works on the principle of

Darcy
Bernoulli
Hooghoudt
Chezy
83.the instrument used to measure the area of map is
Dumpy level
Theodolite
Planimeter
Dynamometer

84. Indian institute of soil and water conservation (IISWC) is located at

Dehradun
Jhansi
Karnal
Jhodhpur

85.USLE is a function of
RKLSCP
RKLSC
RKLCP
None above

86. Seepage pressure always acts in the
Opposite direction of flow
Lateral direction of flow
No specific direction
Direction of Flow

87. Gabions are used for
Flood control
Gully stabilization
Storage of runoff
Flow measurement

88.Rotation of crop is essential for
Increasing fertility of soil
Planting proper plants
Getting different kinds of crop
Increasing quality of minerals

89. The condition for best hydraulic rectangular channel is
D=b/2
D=b

D=b/3
None

90. Pasture lands are generally considered as no erosion problem area, however problem arises
Vegetative cover is removed either by over grazing
Grasses are harvested smoothly
Vegetative cover is destroyed by burning
Both a and c

91.A homogeneous type earth dam is the example of
Hydraulic fill dam
Rock fill dam
Roll fill dam
Gravity dam

92.The overtopping problem from a dam can be overcome by providing sufficient spillway
Freeboard
Allowance for settlement
None

93.homogeneous earth dam are constructed for
Low height
Greater height
20 to 30m
50m

94. The difference between normal and maximum free board is called as
Surcharge
Settlement allowance
Seepage factor
None

95.the function of cut off trench in earth fill dam is to check the
Loss of water by controlling seepage
Seepage
Piping
All above

96. Hydraulic failure of earth dam is due to
Overtopping
Wave action
Toe erosion and gulling
All above

97. Laplace equation used for seepage analysis is valid for
Isotropic
Anisotropic soil

Sandy soil
Clay soil

98. Barlows table is associated to computation of
Runoff
Hydraulic roughness
Runoff coefficient
Evaporation

99.A soil is said to be non- erodible when erosion ratio is
More than 10
0
Less than 10
Equal to 10

100. Falling limb of hydrograph is known as
Recession curve
Depletion curve
Attenuation curve
Concentration curve