SIDDHARTH GROUP OF INSTITUTIONS: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject & Code : WRE-1 (16CE120)
Year & Sem: III-B.Tech & I-Sem

Course & Branch: B.Tech - CE
Regulation: R16

UNIT - I

INTRODUCTION TO HYDROLOGY

1. Explain with the help of a diagram the hydrologic cycle with components. [10M]
2. What do you understand by precipitation? Explain types and forms of precipitation. [10M]
3. Explain any one type of automatic rain gauge with neat sketch. [10M]
4. Describe various methods of computing average rainfall over a basin? [10M]
5. Explain briefly non-automatic rain gauge. [10M]
6. Describe the various methods of missing rainfall data? [10M]
7. A catchment has five rain gauge station, in a year the annual rainfall recorded by the gauge are 78.8, 90.2, 98.6, 102.4 and 70.4 cm. For an error is 6% in the estimation of mean rainfall, determine the additional number of gauges needed. [10M]
8. Explain the float bucket type rain gauge. [10M]
9. Estimate the mean precipitation by Isohyetal method [10M]

Method Isohyetes (cm)	15	19	22	27	32	40
Area between Isohyetes (Km^2)	-	8	13	17	21	27

10. A precipitation station X was in operative for some time during which a storm occurred. The storm total at three station A, B, C surrounding X of were respectively 6.6, 4.8 and 3.7 cm. Normal annual precipitation amounts at station X, A, B and C respectively 65.6, 72.6, 51.8 and 38.2 cm. Estimate the precipitation for station X. [10M]

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1. Hydrology means_____ [ ]
   A) Science of earth B) Science of air C) Science of Water D) None of these
2. All forms of water that reaches earth surface from atmosphere _____ [ ]
   A) Rainfall B) Snow fall C) Mist D) Precipitation
3. Hydrology can be classified into _____ [ ]
   A) Engineering hydrology B) Scientific Hydrology C) Both A & B D) None of these
4. Hydrological data includes _____ [ ]
   A) Temperature data B) Precipitation C) Ground water D) All the above
5. Some parts of precipitation that is intercepted by buildings, trees etc., are _____ [ ]
   A) Transpiration B) Evaporation C) Precipitation D) Interception
6. The process water taken by the vegetation is called _____ [ ]
   A) Infiltration B) Transpiration C) Infiltration D) Evaporation
7. Some part of rainfall water that flows on the earth surface is termed as _____ [ ]
   A) Ground water B) Pore water C) Deep flow D) Runoff
8. The intensity of rainfall at particular period is given by _____ [ ]
   A) $i= \Delta P/\Delta t$ B) $i = \Delta O/\Delta t$ C) $i = \Delta L/\Delta t$ D) $i = \Delta Q/\Delta t$
9. Rainfall data can be presented in _____ [ ]
   A) Hyetographs B) Mass curve C) Point rainfall D) All the above
10. In tipping bucket type of rainfall measurement the bucket will rotate for a depth of __ [ ]
   A) 0.225cm B) 0.325 cm C) 0.125cm D) 0.5cm
11. In Symon rain gauge method the intensity of rainfall is measured _____ a day [ ]
   A) Once B) Twice C) Thrice D) Four times
12. In recording type of rain gauges the intensity of rainfall is measured in the form of __ [ ]
   A) Trace B) Hyetograph C) Manual D) None of these
13. The site selection guidelines of rain gauges is as per _____ [ ]
   A) IS 4897: 1967 B) IS 4897: 1968 C) IS 4897: 1969 D) IS 4897: 1966
14. In water shed leakage the flow of water is due to _____ [ ]
   A) Faults B) Fissures C) Geological D) All the above
15. The rainfall data is analyzed for _____ to construct any hydrological structure [ ]
   A) 10 years B) 20 years C) 30 Years D) 50 years
16. At present around the world _____ (M km^3) of water is available [ ]
   A) 1360 B) 360 C) 1865 D) 2000
17. Cyclonic precipitation is based on _____ [ ]
   A) Frontal Precipitation B) Non-Frontal Precipitation C) Both A & B D) None of these
18. Water droplet size less than 0.5mm is _____ [ ]
   A) Rain B) Glaze C) Hail D) Drizzle

19. Water droplet size ranges from 0.5mm to 6.5mm is _____ [ ]
A) Rain B) Glaze C) Hail D) Drizzle

20. Precipitation in the form of ice crystals is _____ [ ]
A) Rain B) Glaze C) Hail D) Snow

21. Size of the ice crystals more than 8mm is _____ [ ]
A) Rain B) Glaze C) Hail D) Drizzle

22. The process in which water changes its state from liquid to gaseous form is _____ [ ]
A) Transpiration B) Infiltration C) Evaporation D) Runoff

23. As per 21st century census _____ of water is not useful for our usage [ ]
A) 99% B) 96% C) 85% D) 99.6%

24. Rain shadow zone can be seen in _____ [ ]
A) Cyclonic B) Conventional C) Frontal D) Orographic

25. The intensity of heavy rainfall ranges from _____ [ ]
A) 2.5mm to 7.5mm B) >7.5mm C) <2.5mm D) None of these

26. Distribution graph was introduced by _____ [ ]
A) Menard B) Bernard C) Bentley D) Theissen

27. When temperature increases then the rate of infiltration _____ [ ]
A) Decreases B) Constant C) Linearly varied D) Increases

28. Rainfall with high duration and low intensity will _____ infiltration [ ]
A) Improves B) Decreases C) No change D) None of these

29. _____ of precipitation in the arid zones will turns into evaporated [ ]
A) 85% B) 90% C) 99% D) 100%

30. Consistency check is done for _____ [ ]
A) Change in location B) Observation note C) Surroundings D) All the above

31. A unit hydrograph is a hydrograph representing ___ of runoff from a rainfall [ ]
A) 2cm B) 1cm C) 1.5cm D) 3cm

32. The impermeable formations of earth structures, allows the water in appreciable [ ]
A) Aquifer B) Aquiclude C) Aquifuge D) None of these

33. Hydrology can be classified into _____ [ ]
A) Engineering hydrology B) Scientific Hydrology C) Both A & B D) None of these

34. Hydrological data includes _____ [ ]
A) Temperature data B) Precipitation C) Ground water D) All the above

35. Some parts of precipitation that is intercepted by buildings, trees etc., are _____ [ ]
A) Transpiration B) Evaporation C) Precipitation D) Interception

36. The process water taken by the vegetation is called _____ [ ]
A) Infiltration B) Transpiration C) Infiltration D) Evaporation

37. Some part of rainfall water that flows on the earth surface is termed as _____ [ ]
A) Ground water B) Pore water C) Deep flow D) Runoff

38. Water budget method is based on _____ [ ]
A) Law of Newton B) Law of infiltration C) Law of Conservation D) None of these

39. The percentage of total quantity of water in the world that is saline is about [ ]
A) 71% B) 33% C) 67% D) 97%

40. An isohyet is a line joining points having [ ]
A) Equal evaporation value B) Equal barometric pressure
C) Equal height above the MSL. D) Equal rainfall depth in a given duration

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UNIT-II

DESCRIPTIVE HYDROLOGY & HYDROGRAPH ANALYSIS

1. What is infiltration? What are the factors affecting of infiltration? [10M]
2. Explain Construction and Limitations of Unit Hydrograph analysis. [10M]
3. List out the field measurement of infiltrometer and briefly explain. [10M]
4. What is hydrograph? Draw a single peaked hydrograph and explain its components. [10M]
5. Find the ordinates of a storm hydrograph resulting from a 3 hour storm with rainfall of 2, 6.75 and 3.75 cm during subsequent 3 hours intervals. The ordinates of 3 unit hydrographs are listed below: [10M]

Hours	3	6	9	12	15	18	21	24
Ordinates of UH	0	110	365	500	390	310	250	235

Hours	3	6	9	12	15	18	21	24
Ordinates of UH	175	130	95	65	40	32	10	0

Assume an initial loss of 5mm, infiltration index of 2.5mm/hr and base flow 10 cumecs.

6. The infiltration capacity is a basin represented by Horton's equation as $f=3+e^{-2t}$. Where f is in cm/hr, time is in hours. Assuming the infiltration to take place at capacity rates in a storm of 60min duration. Estimate the depth of infiltration. a) The first 30min [5M]
   b) Second 30min. [5M]
7. What is run-off? What are the factors that affect the runoff from a catchment area? [10M]
8. The rate of rainfall for successive 30 minutes periods of a 4-hour storm are as follow: 3.5, 6.5, 8.5, 7.8, 6.4, 4.0, 4.0, 6.0 cm/hr. Taking a value of Ø- Index as 4.5 cm/hr compute the following: a) Total Rainfall b) Total Rainfall Excess & c) W_i. [10M]

9. What do you understand by infiltration index? How do you determine it? [10M]
10. What do you understand by unit hydrograph? How is it derived? Explain its use in construction of flood hydrograph resulting from two or more periods of rainfall. [10M]

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1. In water shed leakage the flow of water is due to _____ [ ]
   A) Faults B) Fissures C) Geological D) All the above
2. Precipitation – surface runoff = _____ [ ]
   A) Interception B) Infiltration C) Evaporation D) Total Losses
3. Water stored in the shallow ditches is _____ [ ]
   A) Depression storage B) Default storage C) Ground water storage D) None of these
4. In Evaporating pan method _____ used as a wire mesh cover [ ]
   A) Mild steel B) Galvanized Iron C) Aluminium D) Copper sheet
5. The term e_s = _____ [ ]
   A) Atmosphere pressure B) Air pressure C) Saturated vapour pressure D) Actual pressure
6. The incoming radiation of sun in Energy budget will go back in the form of ____ [ ]
   A) Back radiation B) Reflected radiation C) Both A & B D) None of these
7. Runoff will be computed by using _____ [ ]
   A) Infiltration method B) Unit hydrograph C) Rational method D) All the above
8. The area of figured polygon can be calculated by _____ [ ]
   A) Planimeter B) Polymeter C) Areal Meter D) None of these
9. Imaginary lines which connect equal heights are called _____ [ ]
   A) Isobars B) Isotropic C) Isometric D) Isohyets
10. Mean of annual precipitations at any station based on 30 year rainfall period is ___ [ ]
   A) Normal precipitation B) Fixed precipitation C) Annual precipitation D) None of these
11. The term e_a = _____ [ ]
   A) Atmosphere pressure B) Air pressure C) Saturated vapour pressure D) Actual pressure
12. The value of K_m for deep storage reservoirs _____ [ ]
   A) 0.36 B) 0.5 C) 0.45 D) 0.10
13. The value of K_m for shallow storage reservoirs _____ [ ]
   A) 0.36 B) 0.5 C) 0.45 D) 0.10

14. The Rohwer's formula can be corrected for effect of pressure by using _____ [ ]
A) Super law B) Power law C) Potential law D) water budget equation

15. Runoff coefficient for Commercial and Industrial areas is _____ [ ]
A) 0.6 B) 0.7 C) 0.8 D) 0.9

16. A unit hydrograph is a hydrograph representing ___ of runoff from a rainfall [ ]
A) 2cm B) 1cm C) 1.5cm D) 3cm

17. Infiltration term was first introduced by _____ [ ]
A) Symon B) Rohwer C) Horton D) Eigen

18. Water budget method is based on _____ [ ]
A) Law of Newton B) Law of infiltration C) Law of Conservation D) None of these

19. Σ inflow = Σ outflow + evaporation and _____ [ ]
A) Change in storage B) Change in air C) Change in pore water D) None of these

20. In the notation "V_9" the term V indicates _____ [ ]
A) Mean velocity B) Volume C) Velocity D) None of these

21. The intensity of heavy rainfall ranges from _____ [ ]
A) 2.5mm to 7.5mm B) >7.5mm C) <2.5mm D) None of these

22. Distribution graph was introduced by _____ [ ]
A) Menard B) Bernard C) Bentley D) Theissen

23. When temperature increases then the rate of infiltration _____ [ ]
A) Decreases B) Constant C) Linearly varied D) Increases

24. Rainfall with high duration and low intensity will _____ infiltration [ ]
A) Improves B) Decreases C) No change D) None of these

25. _____ of precipitation in the arid zones will turns into evaporated water [ ]
A) 85% B) 90% C) 99% D) 100%

26. Consistency check is done for _____ [ ]
A) Change in location B) Observation note C) Surroundings D) All the above

27. Mass curve is used for _____ [ ]
A) Interpretation B) Consistency C) Presentation D) None of these

28. Tube wells are _____ [ ]
A) strainer B) Cavity C) Slotted D) All the above

29. The percolation water through the soil was first studied by _____ [ ]
A) Darcy's law B) Bernard C) Menard D) Rohwer

30. The water yield capacity of a confined aquifer can be explained in _____ [ ]
A) Storage coefficient B) Water coefficient C) Both A& B D) None of these

31. The chemical compound which is generally used to reduce the evaporation from water surface is [ ]
A) DDT B) Alum C) Cetyl alcohol D) Potassium dichromate

32. Lysimeter is an instrument used to measure [ ]
A) Evaporation B) Infiltration C) Evapotranspiration D) Transpiration

33. Infiltration equation is $f_p=3+e^{-2t}$ .Find the infiltration in between 10min and 20min [ ]
A) 30cm B) 20cm C) 15cm D) 35cm

34. The ratio of actual evapotranspiration to potential evapotranspiration is in the range [ ]
A) 0 to 0.4 B) 0.6 to 0.9 C) 0 to 1 D) 1 to 2

35. Infiltration equation is given by Horton's equation $f_p=4+e^{-3t}$ .Find the infiltration in second hour [ ]
A) 2.058cm B) 2.12cm C) 1.98cm D) 2.00cm

36. The permeable formations of earth structures which allows the water in appreciable [ ]
A) Aquifer B) Aquiclude C) Aquifuge D) None of these

37. The impermeable formations of earth structures, allows the water in appreciable [ ]
A) Aquifer B) Aquiclude C) Aquifuge D) None of these

38. The permeable formations of earth structures contains no water in appreciable [ ]
A) Aquifer B) Aquiclude C) Aquifuge D) None of these

39. Aquifer can be classified as _____ [ ]
A) Confined B) Unconfined C) Both A & B D) None of these

40. The process of flowing of water through the soil pores is called _____ [ ]
A) Permeability B) Porosity C) Infiltration D) None of these

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UNIT-III
GROUND WATER

1. Derive an expression for discharge from a well penetrating a confined aquifer. [10M]
2. What do you understand by recuperation test? Derive the equations used in the recuperation test. [10M]
3. Explain the percussion method of drilling a tube well. [10M]
4. Explain the terms of 'storage coefficient' and 'coefficient of transmissibility'. [10M]
5. Explain the method of determining the coefficient of transmissibility of a confined aquifer by pumping out test. How can this method be extended for unconfined aquifer? [10M]
6. State and discuss assumption and limitation of Dupit's theory. 10M]
7. Define the following terms: a) Aquifer b) Aquiclude c) Aquifuge d) Specific yield & e) Specific retention. [Each 2M]
8. During a recuperation test, the water in an open well was depressed by pumping by 2.5 m and it recuperated 1.8 m in 80 minutes. Find
   a) Yield from a well of 4 m diameter under a depression of 3 m, [5M]
   b) the diameter of well to yield 8 L/s under a depression of 2 m. [5M]
9. A well penetrates fully of 10 m thick water bearing stratum of medium sand having coefficient of permeability 0.005 m/sec. The well radius is 10 cm and is to be worked under a drawdown of 4 m at the well face. Calculate the discharge from the well. What will be the percentage increase in the discharge if the radius of the well is doubled? Take R=300 m in each case. [10M]
10. A gravity well has a diameter of 60 cm. The depth of water in the well 40 m before pumping is started. When is pumping is being done at the rate of 2000 l/min, the drawdown in a well 10 m away is 4 m and in another well 20 m away is 2 m. Determine
    a) Radius of zero drawdown [5M]
    b) Coefficient of permeability. [5M]

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1. The process of artificially supplying water to soil for raising crops [ ]
   A) Cultivation B) Irrigation C) Horticulture D) None of these
2. Irrigation includes____ [ ]
   A) Water logged areas B) River control C) Hydroelectric power D) all the above
3. When the total rainfall is less than the needed rainfall for crop is called _____ [ ]
   A) More rainfall B) Less rainfall C) Excess rainfall D) None of these
4. The crops which can grow throughout the year _____ [ ]
   A) Cash crops B) Commercial crops C) Perennial crops D) Field crops
5. _____ is carried out by deep flooding and thorough saturation of land [ ]
   A) Perennial B) Inundation C) Lift D) None of these
6. _____ is practiced when water supply is too low a level to run by gravitation flow [ ]
   A) Lift irrigation B) Drip irrigation C) Perennial irrigationD) None of these
7. Water is spread or flooded on a rather smooth flat land, without much control [ ]
   A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding
8. _____ is achieved by free flooding, contour laterals, border strips [ ]
   A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding
9. The field channels or laterals are aligned approximately along the contour lines [ ]
   A) Border strip B) Flooding by contour C) Basin D) None of these
10. In border strip method, the farm is divided into a series of _____ [ ]
    A) Borders B) Strips C) Both A and B D) None of these
11. The maximum holding moisture to fill all the pores spaces between soil particles [ ]
    A) Field capacity B) Saturation Capacity C) Both A & B D) None of these
12. The moisture content of the soil after removal of free gravity water is [ ]
    A) Field capacity B) Saturation Capacity C) Both A & B D) None of these
13. The water content at which plant can no longer extract water from soil for its growth [ ]
    A) permanent wilting B) Ultimate wilting C) Temporary wilting D) None of these
14. Some times on a windy day plant can recover in cooler portion of day and take water [ ]
    A) permanent wilting B) Ultimate wilting C) Temporary wilting D) None of these
15. When plant cannot regain its turbidity even after addition of water and will die [ ]
    A) permanent wilting B) Ultimate wilting C) Temporary wilting D) None of these
16. The difference in the field capacity and permanent wilting is _____ moisture [ ]
    A) Readily available B) Available C) Both A & B D) None of these
17. The water required to bring soil back to its field capacity is _____ [ ]
    A) Readily available B) Available C) Both A & B D) Deficient water
18. In border strip method, the farm is divided into a series of _____ [ ]
    A) Borders B) Strips C) Both A and B D) None of these
19. _____ to free flooding except that the water is controlled by check area [ ]

A) Root flooding B) Check flooding C) Basin flooding D) None of these

20. _____ area in which crop is not sown in a particular season [ ]
A) Culturable cultivated B) Culturable uncultivated C) Both A & B D) None of these

21. _____ is the method of laying tax on the farmers for utilizing the irrigation water [ ]
A) Assessment B) Consumptive use C) Both A & B D) None of these

22. Which soils contain high organic matter content [ ]
A) Ped-al-fer B) Ped-o-cal C) Humus D) None of these

23. When oven dried sample is kept open in atmosphere, it absorbs water called ___ [ ]
A) Capillary B) Gravitational C) Hygroscopic D) None of these

24. The force per unit area that must be exerted in order to extract water from soil [ ]
A) Soil tension B) Soil stress C) Both A & B D) None of these

25. The sum of both soil tension and osmotic pressure is _____ [ ]

A) Soil tension B) Soil stress C) Both A & B D) None of these

26. Based on the agricultural classification _____ crops are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

27. Based on the crop seasons_____ are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

28. Based on the irrigation requirements _____ crops are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

29. _____ irrigation capacity of unit of water [ ]
A) Delta B) Duty C) Both A & B D) None of these

30. _____ total depth of water required by a crop during the entire period the crop [ ]
A) Delta B) Duty C) Both A & B D) None of these

31. _____ is the time, in that a crop takes from the instant of its sowing to harvesting [ ]
A) Base period B) Crop period C) Both A & B D) None of these

32. _____ is the time, when first irrigation water is applied [ ]
A) Base period B) Crop period C) Both A & B D) None of these

33. Δ= _____ [ ]
A) 8.68(B/D) B) 8.65 (B/D) C) 8.64 (B/D) D) None of these

34. _____ is practiced when water supply is too low a level to run by gravitation flow [ ]
A) Lift irrigation B) Drip irrigation C) Perennial irrigation D) None of these

35. Water is spread or flooded on a rather smooth flat land, without much control [ ]
A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding

36. _____ is achieved by free flooding, contour laterals, border strips [ ]
A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding

37. The field channels or laterals are aligned approximately along the contour lines [ ]
A) Border strip B) Flooding by contour C) Basin D) None of these

38. _____ is the method of laying tax on the farmers for utilizing the irrigation water [ ]
A) Assessment B) Consumptive use C) Both A & B D) None of these

39. Which soils contain high organic matter content [ ]
A) Ped-al-fer B) Ped-o-cal C) Humus D) None of these

40. When oven dried sample is kept open in atmosphere, it absorbs water called ___ [ ]
A) Capillary B) Gravitational C) Hygroscopic D) None of these

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UNIT-IV

IRRIGATION AND WATER REQUIREMENT OF CROPS

1. Define Irrigation and explain the necessity of irrigation. [10M]
2. Discuss in brief the benefits and ill-effects of irrigation. [10M]
3. Write notes on the following: a) Saturation capacity, [5M]
   b) Field capacity, [5M]
4. Explain the terms 'duty' and 'delta'. Derive a relation between the two. [10M]
5. What are the factors affecting duty? How can duty be improved? [10M]
6. A water course has a culturable commanded area of 1520 hectares. The intensity of irrigation for a crop A is 65% and for a crop B is 55%, both the crops being Rabhi crops. Crop A has a kor period of 18 days and crop B has a kor period of 25 days. Calculate the discharge of the water course if the kor depth of crop A is 12 cm and for B it is 18 cm. [10M]
7. A water course commands an irrigated area 1000 hectares. The intensity of irrigation of rice, crop takes 15 days and during transplantation period, total depth of water required by the crop on the field is 500 mm. During the transplantation period, the useful rain falling on the field is 120 mm. Find the duty of irrigation water for crop on the field during transplantation at the head of the field and also at the head of the water course, assuming loss of water to be 20% in the water course. Also, calculate the discharge required in the water course. [10M]
8. What are the types of irrigation efficiencies and explain it? [10M]
9. What do you understand by crop rotation? What are its advantages? [10M]
10. Explain the assessment of irrigation water. [10M]

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1. Irrigation canals are generally aligned along [ ]
A) Ridge line B) contour line C) valley line D) straight line
2. Borrow pits should preferably be located in [ ]
A) Field on the right side of the canal B) Field on the left side of the canal
C) Fields on both sides of the canal D) Central half width of the section of the canal.
3. The length of a meander is the distance along the river between the tangent point of one curve to the tangent point of [ ]
A) Reverse curve B) Next curve of the same order
C) Reverse curve plus the width of the river D) None of these
4. The difference in level between the top of a bank and supply level in a canal, is called [ ]
A) Berm B) Free board C) Height of the tank D) None
5. F.S.L. of a canal at its head with respect to parent channel is kept [ ]
A) At the same level B) 15cm lower C) 15 cm higher D) None
6. The measure to remove water logging of land, is [ ]
A) To reduce percolation from canals and water courses C) Both (a) and (b)
B) To increase outflow from the ground water reservoir D) Neither (a) nor (b)
7. Attracting groynes are built [ ]
A) Perpendicular to the bank B) inclined downstream C) inclined up stream D) None
8. Retrogression of the bed level of a river downstream a weir, occurs due to [ ]
A) Heavy impact of water B) increase of the bed level
C) Less percentage of silt D) Soft soil strata
9. In a canal syphon, the flow is [ ]
A) under atmospheric pressure B) pipe flow C) with critical velocity D) under negative pressure
10. When a canal and a drainage approach each other at the same level, the structure so provided, is [ ]
A) an aqueduct B) a syphon C) a level crossing D) inlet and outlet
11. For smooth entry of water in a canal, the angle between head regulator and water is generally kept [ ]
A) 80^0 B) 90^0 C) 110^0 D) 120^0
12. In a Sarda type fall, the rectangular crest, may be used for discharge upto [ ]
A) 10 cumec B) 12 cumec C) 20 cumec D) 25 cumec
13. In a Sarda type fall, the rectangular crest, may be used for discharge upto [ ]
A) syphon B) aqueduct C) super passage D) syphon-aqueduct
14. For the stability of a structure against seepage pressure according to Khosla's creep theory, the critical gradient is [ ]
A) 0.25 B) 0.5 C) 0.75 D)1.0
15. Groynes are generally built [ ]

A) perpendicular to the bank B) inclined up stream up to 30°
C) inclined down stream upto 30° D) all the above

16. The top of the capillary zone [ ]
A) lies below the water table at every point B) lies above the water table at every point
C) coincides the water table at every point D) none of these

17. Pick up the incorrect statement from the following. Culturable commanded area is the gross area of an irrigation canal system less [ ]
A) populated area B) alkaline area C) forest area D) fallow land

18. The sinuosity of a meander is the ratio of [ ]
A) meander length and the width of meander B) meander length and half width of the river
C) curved length and the straight distance D) none of these

19. The top soil of a water logged field becomes more alkaline and infertile if its p^H value is [ ]
A) 8 B) 7 C) 10 D) 11

20. The main function of a diversion head works of a canal from a river, is [ ]
A) to remove silt B) to control floods C) to store water D) to raise water level

21. The force per unit area that must be exerted in order to extract water from soil [ ]
A) Soil tension B) Soil stress C) Both A & B D) None of these

22. The sum of both soil tension and osmotic pressure is _____ [ ]
A) Soil tension B) Soil stress C) Both A & B D) None of these

23. Based on the agricultural classification _____ crops are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

24. Based on the crop seasons_____ are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

25. Based on the irrigation requirements _____ crops are included [ ]
A) Horticulture crops B) Kharif crops C) Perennial crops D) None of these

26. The crest level of a canal diversion head work, depends upon [ ]
A) F.S.L. of the canal B) discharge perimeters C) pond level D) all the above

27. The depth of rice root zone, is [ ]
A) 60cm B) 70cm C) 80cm D) 90cm

28. Hydrological data includes _____ [ ]
A) Temperature data B) Precipitation C) Ground water D) All the above

29. Some parts of precipitation that is intercepted by buildings, trees etc., are _____ [ ]
A) Transpiration B) Evaporation C) Precipitation D) Interception

30. The process water taken by the vegetation is called _____ [ ]
A) Infiltration B) Transpiration C) Infiltration D) Evaporation

31. Some part of rainfall water that flows on the earth surface is termed as _____ [ ]
A) Ground water B) Pore water C) Deep flow D) Runoff

32. For the stability of a structure against seepage pressure according to Khosla's creep theory, the critical gradient is [ ]
A) 0.25 B) 0.5 C) 0.75 D) 1.0

33. Groynes are generally built [ ]
A) perpendicular to the bank B) inclined up stream up to 30°
C) inclined down stream upto 30° D) all the above

34. The top of the capillary zone [ ]
A) lies below the water table at every point B) lies above the water table at every point

C) coincides the water table at every point D) none of these

35. Distribution graph was introduced by _____ [ ]
A) Menard B) Bernard C) Bentley D) Theissen

36. When temperature increases then the rate of infiltration _____ [ ]
A) Decreases B) Constant C) Linearly varied D) Increases

37. Rainfall with high duration and low intensity will _____ infiltration [ ]
A) Improves B) Decreases C) No change D) None of these

38. _____ of precipitation in the arid zones will turns into evaporated [ ]
A) 85% B) 90% C) 99% D) 100%

39. Consistency check is done for _____ [ ]
A) Change in location B) Observation note C) Surroundings D) All the above

40. A unit hydrograph is a hydrograph representing ___ of runoff from a rainfall [ ]
A) 2cm B) 1cm C) 1.5cm D) 3cm

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QUESTION BANK (DESCRIPTIVE)

Subject & Code : WRE-1 (16CE120)
Year & Sem: III-B.Tech & I-Sem

Course & Branch: B.Tech - CE
Regulation: R16

UNIT-V

CHANNELS- SILT THEORIES

1. What are the types of channels and explain it. [10M]
2. Explain the procedure of designing a channel with Kennedy's theory. [10M]
3. Explain Lacey's silt theory. [10M]
4. For a channel, the discharge (Q), rugosity (N), critical velocity ratio (m) and the bed width –depth ratio (B/D) are given. Explain how you would design the channel using Kennedy's theory. [10M]
5. Compare Kennedy's and Lacey's theories. [10M]
6. Explain the defects in Lacey's theory. [10M]
7. What do you understand by a) regime channel, [5M]
   b) Initial and permanent superior of channels [5M]
8. A distributary is to be designed to irrigate 3600 hac in Rabi and 1400 hac in Kharif. Kor depth and kor period for Rabi and Kharif are 13.5 cm and 4 week, 19.0 cm and 2.5 weeks respectively. Design the distributary by Lacey's theory and silt factor 0.85. [10M]
9. Using lacey's theory, design a irrigation channel for the following data: Discharge Q= 50 cumecs, Silt factor f=1, Side slopes=0.5:1 [10M]
10. Using Kennedy's theory, design a channel section for the following data: Discharge, Q=14 cumecs, Kutters (N)= 0.0225,Crticial velocity ratio (m)=1, Side slope 0.5:1, Bed slope= 1/5000 [10M]

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QUESTION BANK (OBJECTIVE)

Subject & Code : WRE-1 (16CE120)
Year & Sem: III-B.Tech & I-Sem

Course & Branch: B.Tech - CE
Regulation: R16

1. The main cause of silting up a channel, is [ ]
A) Non-regime section B) Inadequate slope C) defective head regulator D) All the above
2. The water required to bring soil back to its field capacity is _____ [ ]
A) Readily available B) Available C) Both A & B D) Deficient water
3. In border strip method, the farm is divided into a series of _____ [ ]
A) Borders B) Strips C) Both A and B D) None of these
4. _____ to free flooding except that the water is controlled by check area [ ]
A) Root flooding B) Check flooding C) Basin flooding D) None of these
5. _____ area in which crop is not sown in a particular season [ ]
A) Culturable cultivated B) Culturable uncultivated C) Both A & B D) None of these
6. _____ is the method of laying tax on the farmers for utilizing the irrigation water [ ]
A) Assessment B) Consumptive use C) Both A & B D) None of these
7. When the total rainfall is less than the needed rainfall for crop is called _____ [ ]
A) More rainfall B) Less rainfall C) Excess rainfall D) None of these
8. The crops which can grow throughout the year _____ [ ]
A) Cash crops B) Commercial crops C) Perennial crops D) Field crops
9. _____ is carried out by deep flooding and thorough saturation of land [ ]
A) Perennial B) Inundation C) Lift D) None of these
10. _____ is practiced when water supply is too low a level to run by gravitation flow [ ]
A) Lift irrigation B) Drip irrigation C) Perennial irrigation D) None of these
11. Water is spread or flooded on a rather smooth flat land, without much control [ ]
A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding
12. _____ is achieved by free flooding, contour laterals, border strips [ ]
A) Free flooding B) Boarder flooding C) Basin flooding D) Uncontrolled Flooding
13. The field channels or laterals are aligned approximately along the contour lines [ ]
A) Border strip B) Flooding by contour C) Basin D) None of these
14. Runoff will be computed by using _____ [ ]
A) Infiltration method B) Unit hydrograph C) Rational method D) All the above
15. The area of figured polygon can be calculated by _____ [ ]
A) Planimeter B) Polymeter C) Areal Meter D) None of these
16. Imaginary lines which connect equal heights are called _____ [ ]
A) Isobars B) Isotropic C) Isometric D) Isohyets
17. Mean of annual precipitations at any station based on 30 year rainfall period is ___ [ ]
A) Normal precipitation B) Fixed precipitation C) Annual precipitation D) None of these
18. The term e_a = _____ [ ]
A) Atmosphere pressure B) Air pressure C) Saturated vapour pressure D) Actual pressure

19. The value of K_m for deep storage reservoirs _____ [ ]
A) 0.36 B) 0.5 C) 0.45 D) 0.10

20. The value of K_m for shallow storage reservoirs _____ [ ]
A) 0.36 B) 0.5 C) 0.45 D) 0.10

21. The Rohwer's formula can be corrected for effect of pressure by using _____ [ ]
A) Super law B) Power law C) Potential law D) water budget equation

22. Runoff coefficient for Commercial and Industrial areas is _____ [ ]
A) 0.6 B) 0.7 C) 0.8 D) 0.9

23. The process of artificially supplying water to soil for raising crops [ ]
A) Cultivation B) Irrigation C) Horticulture D) None of these

24. Irrigation includes____ [ ]
A) Water logged areas B) River control C) Hydroelectric power D) all the above

25. When the total rainfall is less than the needed rainfall for crop is called _____ [ ]
A) More rainfall B) Less rainfall C) Excess rainfall D) None of these

26. The crops which can grow throughout the year _____ [ ]
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35. _____ to free flooding except that the water is controlled by check area [ ]
A) Root flooding B) Check flooding C) Basin flooding D) None of these

36. _____ is a special form of check basin flooding adapted to orchards [ ]
A) Ring basin B) Furrow method C) Zig-zag method D) Drip method

37. The special method where water takes circulating route [ ]
A) Ring basin B) Furrow method C) Zig-zag method D) Drip method

38. Based on the age of formation, soils are classified as _____ [ ]
A) Youthful B) Mature C) Senile D) All the above

39. Which soils contain high calcium carbonate content [ ]
A) Ped-al-fer B) Ped-o-cal C) Humus D) None of these

40. The water required to bring soil back to its field capacity is _____ [ ]
A) Readily available B) Available C) Both A & B D) Deficient water

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