

पुस्तिका में पृष्ठों की संख्या : 12
Number of Pages in Booklet : 12

प्रश्न-पत्र पुस्तिका संख्या /
Question Paper Booklet No.

7160497

पुस्तिका में प्रश्नों की संख्या : 120
No. of Questions in Booklet : 120

FCA-12

Exam Date :- 22.02.21

Paper Code : 10**Sub: Agriculture Engg.****Paper - III**

अधिकतम अंक : 200
Maximum Marks : 200

समय : 3.00 घण्टे
Time : 3.00 Hours

प्रश्न-पत्र पुस्तिका एवं उत्तर पत्रक के पेपर सील/पॉलिथीन बैग को खोलने पर परीक्षार्थी यह सुनिश्चित कर लें कि उसके प्रश्न-पत्र पुस्तिका पर वही प्रश्न-पत्र पुस्तिका संख्या अंकित है जो उत्तर पत्रक पर अंकित है। इसमें कोई भिन्नता हो तो परीक्षार्थी वीक्षक से दूसरा प्रश्न-पत्र प्राप्त कर लें। ऐसा सुनिश्चित करने की जिम्मेदारी अभ्यर्थी की होगी।

On opening the paper seal/polythene bag of the Question Paper Booklet the candidate should ensure that Question Paper Booklet No. of the Question Paper Booklet and Answer Sheet must be same. If there is any difference, candidate must obtain another Question Paper Booklet from Invigilator. Candidate himself shall be responsible for ensuring this.

परीक्षार्थियों के लिए निर्देश

1. सभी प्रश्नों के उत्तर दीजिए।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का केवल एक ही उत्तर दीजिए।
4. एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
5. प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले अथवा बबल को उत्तर पत्रक पर नीले बॉल प्वाइंट पेन से गहरा करना है।
6. OMR उत्तर पत्रक इस परीक्षा पुस्तिका के अन्दर रखा है। जब आपको परीक्षा पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्रक निकाल कर ध्यान से केवल नीले बॉल पॉइंट पेन से विवरण भरें।
7. प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा। गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है। किसी भी प्रश्न से संबंधित गोले या बबल को खाली छोड़ना गलत उत्तर नहीं माना जायेगा।
8. मोबाइल फोन अथवा इलेक्ट्रॉनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।
9. कृपया अपना रोल नम्बर ओ.एम.आर. पत्रक पर सावधानीपूर्वक सही भरें। गलत अथवा अपूर्ण रोल नम्बर भरने पर 5 अंक कुल प्राप्तांकों में से काटे जा सकते हैं।

चेतावनी: अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए विविध नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही विभाग ऐसे अभ्यर्थी को भविष्य में होने वाली विभाग की समस्त परीक्षाओं से विवर्जित कर सकता है।

INSTRUCTIONS FOR CANDIDATES

1. Answer all questions.
2. All questions carry equal marks.
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as 1, 2, 3, 4. You have to darken only one circle or bubble indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
6. The OMR Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with blue ball point pen only.
7. 1/3 part of the mark(s) of each question will be deducted for each wrong answer. A wrong answer means an incorrect answer or more than one answers for any question. Leaving all the relevant circles or bubbles of any question blank will not be considered as wrong answer.
8. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
9. Please correctly fill your Roll Number in O.M.R. Sheet. 5 Marks can be deducted for filling wrong or incomplete Roll Number.

Warning: If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would liable to be prosecuted. Department may also debar him/her permanently from all future examinations.

इस परीक्षा पुस्तिका को तब तक न खोलें जब तक कहा न जाए।

Do not open this Test Booklet until you are asked to do so.

10-□



1. The process of closing the tile gaps and covering them by placing loose top soil materials in setting tile-drain, is called
 - (1) Blinding
 - (2) Bedding
 - (3) Blocking
 - (4) Breaking
2. Leakage factor has the dimensions of
 - (1) Length
 - (2) Time
 - (3) Velocity
 - (4) Resistance
3. The cross slope ditch system is used for drainage of
 - (1) Flat land
 - (2) Pounded land
 - (3) Slopping land
 - (4) Undulating land
4. The ratio of force of inertia and friction force in a flow may be characterised by
 - (1) Nusselt number
 - (2) Reynolds number
 - (3) Rayleigh number
 - (4) Peclet number
5. The porosity of clay soil usually ranges from
 - (1) 30 to 35%
 - (2) 35 to 50%
 - (3) 40 to 60%
 - (4) 50 to 60%
6. A ditch discharge 0.25 cum of water per second and drains 250 hectares. The drainage coefficient of this land is
 - (1) 0.11 mm
 - (2) 5.10 mm
 - (3) 8.64 mm
 - (4) 11.53 mm
7. The shape of water table between two tile line is
 - (1) Elliptical
 - (2) Semi-elliptical
 - (3) Cylindrical
 - (4) Semi-cylindrical
8. Hydraulic conductivity in different soil is found to decrease in following order :
 - (1) Sand > Silt Loam > Silty Clay Loam > Loamy Sand
 - (2) Sand > Loamy Sand > Silt Loam > Silty Clay Loam
 - (3) Sand > Silt Loam > Loamy Sand > Silty Clay Loam
 - (4) Loamy Sand > Sand > Silt Loam > Silty Clay Loam
9. A soil with exchangeable sodium percentage above 15 and EC of saturation extract greater than 4 mmhos/cm is
 - (1) Saline alkali soil
 - (2) Non-saline alkali soil
 - (3) Saline soil
 - (4) Sodic soil
10. The spacing between lateral tiles line
 - (1) Decreases with increase in hydraulic conductivity
 - (2) Increases with increase in hydraulic conductivity
 - (3) Independent of hydraulic conductivity
 - (4) Depends on the outlet conditions
11. Ditch conduit formula is used for
 - (1) Sand bearing test
 - (2) Size of tile drain
 - (3) Grade of tile drain
 - (4) Loads on drain pipe
12. Which of the following term is not used in well hydraulics ?
 - (1) Transmissibility Coefficient
 - (2) Specific Retention
 - (3) Specified Yield
 - (4) Well Points



13. The distance from the centre of a well within which the piezometric surface is lowered, is known as
 (1) Radius of influence
 (2) Drawdown
 (3) Well diameter
 (4) Diameter of influence
14. The velocity of flow in a stream is measured by
 (1) Tensiometer (2) Current meter
 (3) Water meter (4) Lysimeter
15. The depth of flow over a sharp crested rectangular weir should not be more than
 (1) Half the crest width
 (2) Two-third of the crest width
 (3) Three-fourth of the crest width
 (4) The width of the weir
16. A well derives water from confined aquifers is known as
 (1) Gravity well (2) Artesian well
 (3) Shallow well (4) Deep well
17. An aquifer which is bounded by an impermeable layer at the bottom and semi-pervious layer at the top is known as
 (1) Perched aquifer
 (2) Semi-confined aquifer
 (3) Artesian aquifer
 (4) Unconfined aquifer
18. Sub-irrigation is useful in a situation where
 (1) Saline water is used for irrigation
 (2) Soil is heavy clay to permit high capillary rise
 (3) Capillary movement in the root zone is rapid
 (4) No hard pan is present below the root zone
19. Delta(Δ) in cm, Duty(D) in cumec/hectare and Base period (B) in days are related as
 (1) $\Delta = 864 B/D$ (2) $B = 864 \Delta/D$
 (3) $B = 864 D/\Delta$ (4) $D = 8.64 B/\Delta$
20. In stability checks of masonry structures, middle third rule is applied to safeguard against
 (1) Overturning
 (2) Sliding
 (3) Rupture from tension
 (4) Crushing
21. The volume of water that can be extracted by force of gravity from a unit volume of aquifer materials is called
 (1) Specific retention
 (2) Specific yield
 (3) Specific storage
 (4) Specific capacity
22. Which one of the following pairs is not correctly matched?
 (1) Delta – Centimeters
 (2) Base – Kilometers
 (3) Duty – Litres per second per hectare
 (4) Intensity of irrigation – percent
23. In case of semi confined aquifers two additional properties that influences yield of wells apart from those of aquifers are :
 (1) Leakage factor and storage co-efficient
 (2) Hydraulic resistance and specific yield
 (3) Leakage factor and hydraulic resistance
 (4) Hydraulic conductivity and specific yield



24. The length of engineer's chain is
(1) 66 feet (2) 33 feet
(3) 100 feet (4) 150 feet

25. When the soil moisture and rainfall are inadequate during the growing season to support healthy crop growth to maturity is called
(1) Meteorological drought
(2) Hydrological drought
(3) Agricultural drought
(4) Revenue drought

26. Watershed is a
(1) Hydrological entity contributing runoff to a common point
(2) Hydrological entity receiving runoff to a single point
(3) Hydrological entity receiving runoff from multi inlet
(4) Hydrological entity distributing runoff from common inlet

27. If the velocity of flow is doubled, the size of particles that can be transported by pushing or rolling is increased by about
(1) 16 times (2) 32 times
(3) 48 times (4) 64 times

28. Sloping inward bench terraces are effective in
(1) heavy rainfall areas
(2) medium rainfall areas
(3) low rainfall areas
(4) drought prone area

29. Earthen dam, emergency spillway and storage area are components of
(1) Farm pond
(2) Composite dam
(3) Drainage system
(4) Earth embankment

30. The land levelling operation which results in removal of abrupt irregularities such as mounds, dunes and ridges and also filling of pits, depressions and gullies is known as
(1) Land smoothing
(2) Reshaping of land surface to a planned grade
(3) Rough grading
(4) Land surveying and mapping

31. Match the following with respect to classes of erosion by water :

Column-A **Column-B**

- | | |
|-----------------|--|
| (i) Class-I | (a) More than about 75% of the original A horizon and part of all the B horizon lost |
| (ii) Class-II | (b) Up to about 25% of the original A horizon removed |
| (iii) Class-III | (c) Soil profiles have been destroyed except in small areas between gullies |
| (iv) Class-IV | (d) Approximately 25% to 75% of the original A horizon has been lost |

The correct matching is

- (1) (i) – (a), (ii) – (c), (iii) – (d), (iv) – (b)
(2) (i) – (b), (ii) – (d), (iii) – (a), (iv) – (c)
(3) (i) – (c), (ii) – (a), (iii) – (b), (iv) – (d)
(4) (i) – (d), (ii) – (b), (iii) – (c), (iv) – (a)

32. The water harvesting structure on low lying lands where crops are raised by conserving rainwater received from the relatively impervious upland is known as
(1) Nadi (2) Khadin
(3) Tanka (4) Toba

33. Which aspect of geomorphological study of watershed is the elevation difference between reference points located in the drainage basin ?
 (1) Maximum relief
 (2) Maximum basin relief
 (3) Relief
 (4) Channel slope
34. The ratio of the diameter of a circle with same areas as the basin to the maximum basin length is called as :
 (1) Circulatory ratio
 (2) Elongation ratio
 (3) Bifurcation ratio
 (4) Stream length ratio
35. In a gravity dam of base width 'b' the maximum permissible value of eccentricity 'e' is :
 (1) $b/8$ (2) $b/4$
 (3) $b/6$ (4) $b/3$
36. Tractor operation in a lower gear causes –
 (1) More pull (2) Reduced pull
 (3) Less torque (4) All of these
37. The efficiency of an internal-combustion engine is frequently given as
 (1) Performance efficiency
 (2) Indicated thermal efficiency
 (3) Compression efficiency
 (4) Cycle efficiency
38. In which type of engine air alone is taken in during suction stroke
 (1) Diesel engine
 (2) Carburettor engine
 (3) Both diesel and carburettor engine
 (4) None of these
39. One of the method used for evaluating the volatility of fuel in general, is
 (1) API test
 (2) Corrosion test
 (3) Reid vapour pressure test
 (4) Fuel test
40. The maximum overall efficiency of a hydrostatic drive is –
 (1) 60% (2) 70%
 (3) 80% (4) 90%
41. An engine supercharger driven by an exhaust gas turbine is called as
 (1) Electro-charger
 (2) Turbocharger
 (3) Distributor system
 (4) Exhaust manifold system
42. As a rule of thumb, radiator frontal areas of a diesel engine ranges between
 (1) 1.9 to 2.9 cm^2/kW per gross engine output
 (2) 1.9 to 2.9 m^2/kW per gross engine output
 (3) 19 to 29 m^2/kW per gross engine output
 (4) 19 to 29 cm^2/kW per gross engine output
43. Flywheel of an IC engine is made of
 (1) Carbon steel (2) Welded steel
 (3) Cast iron (4) Forged steel
44. Which engine can be operated both in clockwise and counter clockwise direction ?
 (1) Two stroke engine
 (2) Four stroke engine
 (3) Both Two stroke engine and Four stroke engine
 (4) None of these
45. The type of load acting on the lift arm of a tractor hitch system is
 (1) Axial
 (2) Bending and shear
 (3) Torsion
 (4) Crushing



46. Negative slip of tractor is obtained in field operation of
 (1) Ploughing (2) Interculture
 (3) Spraying (4) Rota tilling
47. Device provided for smooth turning of tractor is
 (1) Clutch (2) Gear
 (3) Differential (4) All of these
48. When ploughing one hectare of land once by bullocks having 25 cm furrow width has to walk about (km) ?
 (1) 40 (2) 45
 (3) 50 (4) 55
49. The peripheral speed of a thresher is a function of rpm of cylinder and
 (1) Diameter of threshing cylinder
 (2) Diameter of thresher pulley
 (3) Diameter of prime movers pulley
 (4) Height of feeding tray
50. Swirl plate is one of the component of
 (1) Mist blower-cum-duster
 (2) Power operated duster
 (3) Hydraulic sprayer nozzle
 (4) Fog or smoke generator
51. Rotavator used in agriculture is a
 (1) Sub-soiler (2) Rotary tiller
 (3) Harrow (4) Disc plough
52. Tyne and blade harrow are the equipments most suitable for
 (1) Cotton picking
 (2) Cutting thick stem
 (3) Digging potato and groundnut crops
 (4) Rice and wheat crop harvesting
53. Which one of the following is not a secondary tillage tool ?
 (1) Disc Plough (2) Disc Harrow
 (3) Mould Board (4) None of these
54. With any type of hydraulic nozzle on agricultural sprayer reducing the pressure
 (1) will reduce droplet size.
 (2) will increase droplet size.
 (3) will not affect the droplet size.
 (4) will depend on the type of nozzle.
55. What is the side draft of a tillage implement ?
 (1) Horizontal components of pull, parallel to the line of motion
 (2) Vertical component of pull
 (3) Horizontal components of pull, perpendicular to the line of motion
 (4) Pull divided by the furrow cross section area
56. Harrows are developed as
 (1) Primary tillage implement
 (2) Secondary tillage
 (3) Conventional tillage
 (4) None of these
57. Penetration of disk plough can be increased by
 (1) Increasing the tilt angle
 (2) Increasing the disk angle
 (3) Adding weight to the plough
 (4) All of these
58. In case of cylinder wrapping trouble in a combine, the suggested remedy is
 (1) Increase cylinder speed
 (2) Reduce cylinder speed
 (3) Increase the rack speed
 (4) Lower the machine in front
59. Power tillers operate most satisfactory with
 (1) Rotary tillage (2) Plough
 (3) Transport carts (4) Reapers

60. One of the principles on which specific gravity separator works is based on
- (1) The roundness of grains
 - (2) The floatation of the particle due to upward movement of air
 - (3) The basis of relative lengths of grains
 - (4) The basis of surface texture of grains
61. Which of the following are NOT key constraints of the food processing industry ?
- (1) Inadequate quality control
 - (2) High packaging cost
 - (3) Low demand
 - (4) Poor infrastructure as in no cold storage, warehouse etc.
62. Jam, jellies and preserves can be preserved by adding sugar at concentration of
- (1) 65%
 - (2) 75%
 - (3) 40%
 - (4) 30%
63. If moisture content on wet basis is 20%, then what would be the moisture content dry basis.
- (1) 25%
 - (2) 18%
 - (3) 20%
 - (4) 22%
64. The type of pulse milling are
- (1) Dry and wet milling
 - (2) Hot and dry milling
 - (3) Wet and humid milling
 - (4) Rough and smooth milling
65. Belt conveyors have a high mechanical efficiency because of
- (1) Stability of conveyor
 - (2) Antifriction bearing
 - (3) Dead load of conveyor
 - (4) Constant speed of conveyor
66. The removal of water from a substance by direct sublimation from the frozen state to the vapour state is known as
- (1) Mechanical drying
 - (2) Microwave drying
 - (3) Freeze drying
 - (4) Solar drying
67. Pneumatic separator is used for removal of
- (1) light impurities
 - (2) heavy impurities
 - (3) rough impurities
 - (4) smooth impurities
68. Hammer mill works on the principle of
- (1) Shear
 - (2) Crushing
 - (3) Impact
 - (4) Friction
69. One of the by-products of rice mills, apart from paddy husk is
- (1) Coir
 - (2) Rice germ
 - (3) Floss
 - (4) Defatted bran
70. For curing, sweet potatoes are kept for 10 days at :
- (1) 25 °C and 85% RH
 - (2) 40 °C and 70% RH
 - (3) 80 °C and 30% RH
 - (4) 30 °C and 80% RH
71. Vitamin which is not found in Fruits and Vegetables :
- (1) Vitamin A
 - (2) Vitamin B₁
 - (3) Vitamin B₆
 - (4) Vitamin B₁₂
72. The energy storing capacity of magnetic field is about _____ times greater than that of electric field.
- (1) 50,000
 - (2) 25,000
 - (3) 10,000
 - (4) 40,000
73. Transformer is a device for changing
- (1) Voltage
 - (2) Frequency
 - (3) Both Voltage and Frequency
 - (4) None of these



74. The line voltage is reduce to what value in star-delta-starter in a phase delta connected motors
- (1) $\frac{2}{\sqrt{3}}$ (2) $\sqrt{3}$
 (3) $\frac{1}{\sqrt{3}}$ (4) $\frac{\sqrt{3}}{2}$
75. Operating efficiency of electric motor ranges from
- (1) 28-38% (2) 50-90%
 (3) 20-25% (4) 30-45%
76. Electricity produced by solar photovoltaic cell in the form of
- (1) AC
 (2) DC
 (3) Both AC and DC
 (4) None of these
77. The developed electro-magnetic force and/or torque in electro-mechanical energy conversion system, acts in such a direction that tends to
- (1) Increase the stored energy at constant mmf
 (2) Decrease the stored energy at constant mmf
 (3) Decrease the co-energy at constant mmf
 (4) Increase the stored energy at constant flux
78. When a current of 5A flows through a coil of linear magnetic circuit, it has flux linkages of 2.4 wb-turns. What is the energy stored in the magnetic field of this coil in Joules ?
- (1) 6 (2) 12
 (3) 1.2 (4) 2.4
79. The electro-magnetic force and/or torque, developed in any physical system, acts in such a direction as to tend to
- (1) Decrease the magnetic stored energy at constant mmf
 (2) Decrease the magnetic stored energy at constant flux
 (3) Increase the magnetic stored energy at constant flux
 (4) Increase the magnetic stored energy at constant current
80. With a load power factor of unity, the effect of armature reaction on the main-field flux of an alternator is
- (1) Distortional (2) Magnetizing
 (3) Demagnetizing (4) Nominal
81. The stator and rotor of a 3 - ϕ induction motor behave like
- (1) Ordinary two winding transformer
 (2) Variable voltage, constant frequency transformer
 (3) Constant voltage variable frequency transformer
 (4) Variable voltage, variable frequency transformer, V/f remaining constant
82. The main purpose of using core in transformer is to
- (1) Decrease iron losses
 (2) Prevent eddy current losses
 (3) Eliminate magnetic hysteresis
 (4) Decrease reluctance of the common magnetic circuit
83. Commutator in DC generator is used for
- (1) Collecting of Current
 (2) Reduce losses
 (3) Increase efficiency
 (4) Convert AC armature current into DC

84. The angle made in the horizontal plane between the horizontal line due south and the projection of the normal to the surface on the horizontal plane is
- (1) Hour angle
 - (2) Declination
 - (3) Surface azimuth angle
 - (4) Solar altitude angle
85. At what range of speed is the electricity from the wind turbine is generated ?
- (1) 100 – 125 mph (2) 450 – 650 mph
 - (3) 250 – 450 mph (4) 30 – 35 mph
86. Solar absorber plate surfaces which exhibit the characteristics of a high value of absorptivity for incoming solar radiation are called
- (1) Ideal surface
 - (2) Selective surface
 - (3) Excellent surfaces
 - (4) Non-selective surfaces
87. When conduction in semiconductor is due to impurities, the material is called
- (1) Extrinsic semiconductor
 - (2) Intrinsic semiconductor
 - (3) Both Extrinsic semiconductor and Intrinsic semiconductor
 - (4) None of these
88. In a greenhouse, for the efficient process of photosynthesis, the adequate concentration of following is essential :
- (1) Carbon dioxide
 - (2) Oxygen
 - (3) Carbon monoxide
 - (4) Nitrogen

89. Which of the energy conversion process produced high octane rating liquid fuel that reduces noxious emission and can improve engine performance ?
- (1) Anaerobic fermentation
 - (2) Thermo-chemical process
 - (3) Alcoholic fermentation
 - (4) Hydrogenation
90. Standard value of solar constant is
- (1) 1253 w/m² (2) 1353 w/m²
 - (3) 1453 w/m² (4) 1553 w/m²
91. Briquetting is :
- (1) Densification
 - (2) Anaerobic digestion
 - (3) Carbonization
 - (4) All of these
92. By doubling the wind speed power will be increased by
- (1) 2 times (2) 4 times
 - (3) 6 times (4) 8 times
93. What is the weight of biogas holder ?
- (1) 8-10 kg/m² (2) 10-15 kg/m²
 - (3) 8-18 kg/m² (4) 25-30 kg/m²
94. Solar cells are made from bulk materials that are cut into wafer of _____ thickness.
- (1) 120-180 μm (2) 120-220 μm
 - (3) 180-220 μm (4) 180-240 μm
95. In terms of per unit output of energy in the form of heat and/or electricity, the area requirement is lowest for which of the following energy conversion process equipment ?
- (1) Hydrolysis
 - (2) Biomethanation
 - (3) Solar photovoltaic
 - (4) Gasification



96. Rational formula computes
 (1) Runoff rate (2) Direct runoff
 (3) Peak runoff rate (4) Rainfall excess
97. Splash erosion is associated to
 (1) Rainfall intensity
 (2) Sheet flow
 (3) Wind velocity
 (4) Slope steepness
98. The most popular plotting position formula used for probability analysis of rainfall occurrence is given by
 (1) $P = \left(\frac{m}{N+1} \right)$ (2) $P = \left(\frac{m+1}{N} \right)$
 (3) $P = \left(\frac{N+1}{m} \right)$ (4) $P = m(N+1)$
99. An area is classified as a drought prone area if the probability P of occurrence of a drought is
 (1) $0.4 < P \leq 1.0$ (2) $0.2 \leq P \leq 0.40$
 (3) $0.1 \leq P < 0.20$ (4) $0.0 < P \leq 0.20$
100. The height of end sill in Chute spillway is given by
 (1) $C = 0.7 Y_2$ (2) $C = 0.07 Y_2$
 (3) $C = 1.7 Y_2$ (4) $C = 0.17 Y_2$
101. A typical sand dune has highest steeper slope to leeward side of
 (1) 15 per cent (2) 33 per cent
 (3) 50 per cent (4) 65 per cent
102. The flood routing by hydrologic method is based on the
 (1) Energy equation
 (2) Equation of motion
 (3) Equation of continuity
 (4) Momentum and continuity equation
103. If the land slope is increased four times, the velocity of water flowing over it will increase
 (1) Three times (2) Two times
 (3) Negligible (4) Four times
104. The World Meteorological Organisation (WMO) recommends that the ideal distribution of rain gauges in flat regions should be at the rate of one station for
 (1) 600 to 900 km²
 (2) 300 to 600 km²
 (3) 900 to 1300 km²
 (4) 100 to 250 km²
105. A unit hydrograph consists of one unit of
 (1) Effective rainfall duration
 (2) Peak discharge
 (3) Hydrograph time base
 (4) Direct runoff
106. Contour bunding is to be done in a land having 4% gradient. If horizontal interval of the bund is 100 m, the vertical interval between the bunds will be
 (1) 25 m (2) 0.25 m
 (3) 4 m (4) 2.5 m
107. The equation used for estimation of percentage area lost due to contour bunding is given by –
 (1) $\frac{1.3 sb}{VI}$ (2) $\frac{1.3 s}{b \times VI}$
 (3) $\frac{1.3 b}{s \times VI}$ (4) $\frac{1.3}{sb \times VI}$
 where s = slope of land (fraction)
 b = base width of contour bund, m
 VI = vertical interval, m
108. Sprinkler irrigation is most suitable for
 (1) Clay soil (2) Sandy soil
 (3) Paddy crop (4) Saline water

109. For most efficient hydraulic section of a rectangular channel the bottom width is
- (1) Equal to the depth
 - (2) Equal to half of depth
 - (3) Equal to 150% of depth
 - (4) Equal to 200% of depth
110. The soil moisture tension at wilting point is
- (1) Less than 1 atm.
 - (2) Equal to 4 atm.
 - (3) More than 15 atm.
 - (4) Equal to 1/3 atm.
111. The size of furrow stream usually varies from
- (1) 0.1 to 0.5 litres/sec
 - (2) 0.5 to 1.0 litres/sec
 - (3) 0.5 to 2 litres/sec
 - (4) 0.5 to 2.5 litres/sec
112. The actual area irrigated in a year from an irrigation project is called
- (1) Irrigation period
 - (2) Intensity of irrigation
 - (3) Irrigation frequency
 - (4) Irrigation efficiency
113. Coir strainers, bamboo strainers and polythene strainers are commonly used as
- (1) Well screens with louvers
 - (2) Well screens in deep tube well
 - (3) Continuous slot type screens
 - (4) Well screens in shallow tube well
114. Provision of adequate vents in the pipeline can eliminate the problem of
- (1) Development of longitudinal cracks in the pipe
 - (2) Surging or intermittent flow of water
 - (3) Failure of underground pipeline
 - (4) Telescoping of sections

115. The line joining the piezometric levels at various points, called piezometric surface, also represents the
- (1) Hydraulic head
 - (2) Hydraulic Gradient Line (HGL)
 - (3) Phreatic line
 - (4) Hydraulic gradient
116. The size and length of sub-main in drip irrigation system is determined by
- (1) Number of laterals and distance between the laterals
 - (2) Flow rate of all the sub-mains
 - (3) Material of pipe used in sub-mains
 - (4) Flow rate and material of pipes used in sub-mains
117. In centrifugal pump when operating speed is changed the head will change as
- (1) In direct proportion to variation in speed
 - (2) Square of the change of speed
 - (3) Cube of the change in speed
 - (4) None of these
118. Water horse power of centrifugal pump of 10 litres/sec capacity and 30 m total head will be equal to :
- | | |
|---------|---------|
| (1) 3.0 | (2) 4.0 |
| (3) 5.0 | (4) 6.0 |
119. S.A.F. stilling basin gives adequate performance for a range of Froude numbers varying from
- | | |
|-------------|---------------|
| (1) 5 to 17 | (2) 3.7 to 20 |
| (3) 2 to 20 | (4) 1.7 to 17 |
120. Interceptor drain helps to control water logging by :
- (1) Lowering the water table
 - (2) Preventing subsoil water from reaching the area
 - (3) Allowing vertical drainage
 - (4) Drainage out excess water to the natural drain



रफ कार्य के लिए स्थान / SPACE FOR ROUGH WORK

