

इस प्रश्न पुस्तिका को तब तक न खोलें जब तक कहा न जाए।/Do not open this Question Booklet until you are asked to do so.

पुस्तिका में पृष्ठों की संख्या : 24  
No. of Pages in Booklet : 24  
पुस्तिका में प्रश्नों की संख्या : 150  
No. of Questions in Booklet : 150  
Paper Code : 07

## AEA-26

Exam Date = 19/04/2026

प्रश्न पुस्तिका संख्या व  
बारकोड/  
Question Booklet  
No. & Barcode



703845

27.4.26

Subject : Agriculture Engineering

समय : 02:30 घण्टे + 10 मिनट अतिरिक्त\*

अधिकतम अंक : 150

Time : 02:30 Hours + 10 Minutes Extra\*

Maximum Marks : 150

प्रश्न पुस्तिका के पेपर की सील/पॉलिथिन बैग को खोलने पर प्रश्न पत्र हल करने से पूर्व परीक्षार्थी यह सुनिश्चित कर लें कि :-

- प्रश्न पुस्तिका संख्या तथा ओ.एम.आर. उत्तर-पत्रक पर अंकित बारकोड संख्या समान है।
  - प्रश्न पुस्तिका एवं ओ.एम.आर. उत्तर-पत्रक के सभी पृष्ठ व सभी प्रश्न सही मुद्रित हैं। समस्त प्रश्न जैसा कि ऊपर वर्णित है, उपलब्ध हैं तथा कोई भी पृष्ठ कम नहीं है/मुद्रण त्रुटि नहीं है।
- किसी भी प्रकार की विसंगति या दोषपूर्ण होने पर परीक्षार्थी वीक्षक से दूसरी प्रश्न पुस्तिका प्राप्त कर लें। यह सुनिश्चित करने की जिम्मेदारी अम्यर्थी की होगी। परीक्षा प्रारम्भ होने के 5 मिनट पश्चात् ऐसे किसी दावे/आपत्ति पर कोई विचार नहीं किया जायेगा।

On opening the paper seal/polythene bag of the Question Booklet before attempting the question paper the candidate should ensure that:-

- Question Booklet Number and Barcode Number of OMR Answer Sheet are same.
- All pages & Questions of Question Booklet and OMR Answer Sheet are properly printed. All questions as mentioned above are available and no page is missing/misprinted.

If there is any discrepancy/defect, candidate must obtain another Question Booklet from Invigilator. Candidate himself shall be responsible for ensuring this. No claim/objection in this regard will be entertained after five minutes of start of examination.

### परीक्षार्थियों के लिए निर्देश

1. प्रत्येक प्रश्न के लिये एक विकल्प भरना अनिवार्य है।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का मात्र एक ही उत्तर दीजिये। एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
4. OMR उत्तर-पत्रक इस प्रश्न पुस्तिका के अन्दर रखा है। जब आपको प्रश्न पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्रक निकाल कर ध्यान से केवल नीले बॉल प्वाइंट पेन से विवरण भरें।
5. कृपया अपना रोल नम्बर ओ.एम.आर. उत्तर-पत्रक पर सावधानीपूर्वक सही भरें। गलत रोल नम्बर भरने पर परीक्षार्थी स्वयं उत्तरदायी होगा।
6. ओ.एम.आर. उत्तर-पत्रक में करेक्शन पेन/व्हाइटनर/सफेदा का उपयोग निषिद्ध है।
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।
8. प्रत्येक प्रश्न के पांच विकल्प दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4, 5 अंकित किया गया है। अम्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले (बबल) को उत्तर-पत्रक पर नीले बॉल प्वाइंट पेन से गहरा करना है।
9. यदि आप प्रश्न का उत्तर नहीं देना चाहते हैं, तो उत्तर-पत्रक में पांचवें (5) विकल्प को गहरा करें। यदि पांच में से कोई भी गोला गहरा नहीं किया जाता है, तो ऐसे प्रश्न के लिये प्रश्न अंक का 1/3 भाग काटा जायेगा।
- 10.\* प्रश्न पत्र हल करने के उपरान्त अम्यर्थी अनिवार्य रूप से ओ.एम.आर. आंसर शीट जांच लें कि समस्त प्रश्नों के लिये एक विकल्प (गोला) भर दिया गया है। इसके लिये ही निर्धारित समय से 10 मिनट का अतिरिक्त समय दिया गया है।
11. यदि अम्यर्थी 10% से अधिक प्रश्नों में पांच विकल्पों में से कोई भी विकल्प अंकित नहीं करता है, तो उसको अयोग्य माना जायेगा।
12. मोबाइल फोन अथवा इलेक्ट्रॉनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अम्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है, तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।

चेतावनी : अगर कोई अम्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अम्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए और राजस्थान सार्वजनिक परीक्षा (भर्ती में अनुचित साधनों की रोकथाम अध्यापय) अधिनियम, 2022 तथा अन्य प्रभावी कानून एवं आयोग के नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही आयोग ऐसे अम्यर्थी को भविष्य में होने वाली आयोग की समस्त परीक्षाओं से विवर्जित कर सकता है।

### INSTRUCTIONS FOR CANDIDATES

1. It is mandatory to fill one option for each question.
2. All questions carry equal marks.
3. Only one answer is to be given for each question. If more than one answers are marked, it would be treated as wrong answer.
4. The OMR Answer Sheet is inside this Question Booklet. When you are directed to open the Question Booklet, take out the Answer Sheet and fill in the particulars carefully with BLUE BALL POINT PEN only.
5. Please correctly fill your Roll Number in OMR Answer Sheet. Candidate will himself/herself be responsible for filling wrong Roll Number.
6. Use of Correction Pen/Whitener in the OMR Answer Sheet is strictly forbidden.
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.
8. Each question has five options marked as 1, 2, 3, 4, 5. You have to darken only one circle (bubble) indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
9. If you are not attempting a question, then you have to darken the circle '5'. If none of the five circles is darkened, one third (1/3) part of the marks of question shall be deducted.
- 10.\* After solving the question paper, candidate must ascertain that he/she has darkened one of the circles (bubbles) for each of the questions. Extra time of 10 minutes beyond scheduled time is provided for this.
11. A candidate who has not darkened any of the five circles in more than 10% questions shall be disqualified.
12. 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 by the Commission as per rules.

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 under Rajasthan Public Examination (Measures for Prevention of Unfair Means in Recruitment) Act, 2022, other laws applicable and Commission's Regulations. Commission may also debar him/her permanently from all future examinations.

उत्तर-पत्रक में दो प्रतियां हैं - मूल प्रति और कार्बन प्रति। परीक्षा समाप्ति पर परीक्षा कक्ष छोड़ने से पूर्व परीक्षार्थी उत्तर-पत्रक की दोनों प्रतियां वीक्षक को सौंपेंगे, परीक्षार्थी स्वयं कार्बन प्रति अलग नहीं करें। वीक्षक उत्तर-पत्रक की मूल प्रति को अपने पास जमा कर, कार्बन प्रति को मूल प्रति से कट लाईन से मोड़कर सावधानीपूर्वक अलग कर परीक्षार्थी को सौंपेंगे, जिसे परीक्षार्थी अपने साथ ले जायेंगे। परीक्षार्थी को उत्तर-पत्रक की कार्बन प्रति चयन प्रक्रिया पूर्ण होने तक सुरक्षित रखनी होगी एवं आयोग द्वारा मांगे जाने पर प्रस्तुत करनी होगी।



- 2020-2021 Exams - 2022
1. Sloping outwards bench terraces are effective in -
- (1) Drought prone areas
  - (2) Medium rainfall areas
  - (3) Low rainfall areas
  - (4) Heavy rainfall areas
  - (5) Question not attempted
2. Horizontal component of pull, perpendicular to the line of motion, is called as -
- (1) Draft
  - (2) Traction
  - (3) Side draft
  - (4) Pull
  - (5) Question not attempted
3. The type of furrow opener suitable for trashy or relatively hard ground is -
- (1) Sweep type
  - (2) Disc type
  - (3) Hoe type
  - (4) Runner type
  - (5) Question not attempted
4. In engineer's chain, the tag at the 20<sup>th</sup> link have how many teeth?
- (1) Four teeth
  - (2) Three teeth
  - (3) Two teeth
  - (4) One tooth
  - (5) Question not attempted
5. In milling of pulses, the term pitting refers to -
- (1) splitting cotyledons.
  - (2) removing seed coat.
  - (3) grinding into flour.
  - (4) making scratches on seed coat.
  - (5) Question not attempted
6. The size of farmstead usually varies from ..... of total farm area.
- (1) 15-17%
  - (2) 3-5%
  - (3) 10-12%
  - (4) 18-20%
  - (5) Question not attempted
7. To achieve the desired current from solar cell modules, solar cells are connected in -
- (1) vertical
  - (2) series
  - (3) parallel
  - (4) horizontal
  - (5) Question not attempted
8. The total pressure variation in the laterals of sprinkler irrigation system should not be more than -
- (1) 5%
  - (2) 15%
  - (3) 10%
  - (4) 20%
  - (5) Question not attempted

9. A mixing type continuous flow dryer, in which layers of inverted V-shaped channels are installed, is known as -
- (1) Fluidized Bed Dryer (2) LSU Dryer  
 (3) Tray Dryer (4) Tunnel Dryer  
 (5) Question not attempted
10. In electric wiring, 04 AWG wire has ..... current carrying capacity compared to 10 AWG wire.
- (1) half of the (2) higher  
 (3) lower (4) same  
 (5) Question not attempted
11. Specific speed  $n_s$  of pump is .....  
 where  $n$  = pump speed (rpm)  
 $q$  = pump discharge (U.S. gallons/minute)  
 $H$  = total head (feet)  
 $n_s$  = specific speed (rpm)
- (1)  $n_s = \frac{nq^{\frac{2}{3}}}{H^4}$  (2)  $n_s = \frac{nq^{\frac{1}{2}}}{H^4}$   
 (3)  $n_s = \frac{nq^{\frac{1}{2}}}{H^4}$  (4)  $n_s = \frac{nq^{\frac{2}{3}}}{H^4}$   
 (5) Question not attempted
12. In which cycle of IC engine, the heat is taken and rejected at constant volume of the cylinder?
- (1) Diesel (2) Carnot  
 (3) Otto (4) Tractive  
 (5) Question not attempted
13. Hooghoudt's equation gives relationship between -
- (1) spacing of drains and the height of the water in the drains.  
 (2) spacing of drains and the height of the water table built up between the drains.  
 (3) spacing of drains and the depth of the water table below the soil surface.  
 (4) spacing of drains and the height of the drains above the impermeable layer.  
 (5) Question not attempted
14. Woven wire dams are used in gullies of -
- (1) low slope and large drainage area. (2) moderate slope and large drainage area.  
 (3) moderate slope and small drainage area. (4) high slope and large drainage area.  
 (5) Question not attempted

15. Bench terraces are constructed only on slopes -
- (1) Steeper than 15% (2) 2 to 5%  
(3) 10 to 12% (4) 5 to 10%  
(5) Question not attempted
16. S.A.F. stilling basin gives adequate performance for a range of Froude numbers varying from -
- (1) 0.06 to 1.0 (2) 0.01 to 0.05  
(3) 1.30 to 1.50 (4) 1.7 to 17  
(5) Question not attempted
17. The efficiency of an internal combustion engine is frequently given as the ratio of the work equivalent of the area on the actual indicator diagram to the work equivalent of the lower heat of combustion of the fuel is called -
- (1) Volumetric efficiency (2) Brake thermal efficiency  
(3) Indicated thermal efficiency (4) Mechanical efficiency  
(5) Question not attempted
18. The clearance between the beater or cylinder tip and concave is known as -
- (1) Concave clearance (2) Tappet clearance  
(3) Alignment (4) Registration  
(5) Question not attempted
19. In mechanical expression of oil by screw press, oil is forced out of the seeds primarily due to -
- (1) high-speed impact from hammers. (2) centrifugal force generated by the rotating shaft.  
(3) increasing compression. (4) chemical reaction with added solvents.  
(5) Question not attempted
20. Wind speed is measured by -
- (1) Anemometer (2) Tachometer  
(3) Hygrometer (4) Solarimeter  
(5) Question not attempted
21. The hydraulic brake system works on the principle of -
- (1) Boyle's Law (2) Newton's Second Law of Motion  
(3) Pascal's Law (4) Hooke's Law  
(5) Question not attempted

22. The angle between the steering axis (the line through the kingpin or ball joint) and the vertical plane viewed from the side of tractor is called as -
- (1) Kingpin angle (2) Caster angle  
(3) Toe-in angle (4) Camber angle  
(5) Question not attempted
23. In drying calculations, thin-layer drying refers to the process where -
- (1) all the grains are fully exposed to the drying air under constant drying conditions.  
(2) moisture is only removed from the bottom layer of the bed.  
(3) the grain depth is more than 20 cm.  
(4) the air temperature drops significantly as it passes through the grain.  
(5) Question not attempted
24. The disc separator separates materials on the basis of difference in -
- (1) colour (2) density  
(3) surface roughness (4) length  
(5) Question not attempted
25. The Desert Development Programme was initiated by the Government of India in the year -
- (1) 1985-86 (2) 1977-78  
(3) 1980-81 (4) 1990-91  
(5) Question not attempted
26. A diversion ditch should be set back from the gully to a minimum distance of -
- (1) twice the height of the gully overfall. (2) the height of the gully overfall.  
(3) three times the height of the gully overfall. (4) four times the height of the gully overfall.  
(5) Question not attempted
27. The maximum soil moisture tension at "ultimate wilting point" may be upto -
- (1) 60 atmospheres (2) 90 atmospheres  
(3) 70 atmospheres (4) 80 atmospheres  
(5) Question not attempted
28. A Hydraulic Ram is -
- (1) Jet pump (2) Reciprocating pump  
(3) Centrifugal pump (4) Impulse pump  
(5) Question not attempted



29. The equation  $F = Ac + W \tan \phi$  was given by -
- (1) Goering (2) Smith-Hoki  
 (3) Bainer and Kepner (4) Mohr and Coulomb  
 (5) Question not attempted
30. The size of soil particles which move in surface creep under wind erosion is -
- (1) 0.01 to 0.06 mm (2) less than 0.05 mm  
 (3) 0.075 to 0.20 mm (4) 0.50 to 2.0 mm  
 (5) Question not attempted
31. What may be the causes of excessive grain damage during threshing of wheat crop by a thresher?
- (A) High threshing cylinder speed  
 (B) Low concave clearance  
 (C) Uniform grain size  
 (D) Improper feed rate of crop
- (1) Only (A), (B) and (D) are correct (2) Only (A), (B) and (C) are correct  
 (3) Only (B) and (C) are correct (4) Only (A) and (B) are correct  
 (5) Question not attempted
32. The relative time (in minutes) required to sterilize, effectively, any selected organism at 121°C is referred to as -
- (1) Z-value (2) F-value  
 (3) P-value (4) D-value  
 (5) Question not attempted
33. In a common refrigeration system, ..... increases the pressure and temperature of the refrigerant above atmosphere.
- (1) evaporator (2) condenser  
 (3) compressor (4) expansion valve  
 (5) Question not attempted
34. A soil with exchangeable sodium percentage above 15 and Electrical Conductivity (EC) of saturation extract less than 4 dS/m and pH greater than 8.5 is -
- (1) Non-saline non-alkali soils (2) Alkali soils  
 (3) Saline soils (4) Saline alkali soils  
 (5) Question not attempted

35. The rate of heat transfer by conduction through a substance is directly proportional to the temperature gradient and to the area normal to the direction of heat flow, according to -
- (1) Kick's Law (2) Dick's Law  
(3) Fick's Law (4) Fourier's Law  
(5) Question not attempted
36. The coefficient of discharge for sprinkler nozzles varies from -
- (1) 0.80 to 0.95 (2) 0.40 to 0.60  
(3) 0.60 to 0.70 (4) 0.20 to 0.40  
(5) Question not attempted
37. In a biogas digester, the optimum carbon-nitrogen ratio that best suits for maximum microbiological activity should be -
- (1) 30:1 (2) 10:1  
(3) 1:1 (4) 20:1  
(5) Question not attempted
38. When different values of relative humidity versus equilibrium moisture content are plotted at certain temperature condition, the curve is called -
- (1) Isohyets (2) Isobar  
(3) Isometric (4) Isotherm  
(5) Question not attempted
39. The desorption EMC values are .....the adsorption EMC values.
- (1) higher than (2) lower than  
(3) half of (4) equal to  
(5) Question not attempted
40. A bin whose relative dimensions are such that the plane of rupture meets the grain surface before it strikes the opposite sidewall, is called -
- (1) Deep bin (2) RCC bin  
(3) Pusa bin (4) Shallow bin  
(5) Question not attempted
41. The rate of field coverage that would be obtained if the machine was performing its function 100 percent of the time and at the rated forward speed and always covered 100 percent of rated width, is called as -
- (1) Field efficiency (2) Theoretical time per hectare  
(3) Theoretical field capacity (4) Effective field capacity  
(5) Question not attempted

42. Droplets that do not land on the intended target are considered as -
- (1) Residue
  - (2) Spray
  - (3) Pearl
  - (4) Drift
  - (5) Question not attempted
43. When the fuel is supplied at very high pressure (150 bar) from the fuel pump to the fuel injector, the system is known as -
- (1) Air injection
  - (2) Solid injection
  - (3) Split injection
  - (4) Cone injection
  - (5) Question not attempted
44. In an updraft gasifier, the oxidizing agent is introduced at -
- (1) bottom
  - (2) top
  - (3) mid-level
  - (4) side
  - (5) Question not attempted
45. Bernoulli's equation works on the principle of -
- (1) Conservation of mass
  - (2) Conservation of momentum
  - (3) Conservation of energy
  - (4) Conservation of volume
  - (5) Question not attempted
46. A shallow wall constructed below the bed or floor level of masonry water harvesting structure to prevent piping under the structure is called -
- (1) Toe wall
  - (2) Wing wall
  - (3) Cutoff wall
  - (4) Side wall
  - (5) Question not attempted
47. The main factors responsible for soil erosion in India are -
- (1) excessive deforestation, overgrazing and faulty agricultural practices.
  - (2) infiltration rate of soil and resistance of soil to dispersion and erosion.
  - (3) low intensity of rainfall, land slope and faulty agricultural practices.
  - (4) dense vegetative cover, soil properties, topography and climate.
  - (5) Question not attempted
48. In Universal Soil Loss Equation,  $A = RKLSCP$ , "P" denotes -
- (1) Conservation practice factor
  - (2) Soil erodibility factor
  - (3) Cropping management factor
  - (4) Slope length factor
  - (5) Question not attempted

49. Out of the following, which is not a type of furrow opener in a seed cum fertilizer drill?
- (1) Fluted roller type
  - (2) Hoe type
  - (3) Single disc type
  - (4) Double disc type
  - (5) Question not attempted
50. Cross staff is a survey instrument used for the purpose of -
- (1) setting out a right angle at a given point on a line.
  - (2) measurement of elevation of a point.
  - (3) measurement of length of a line.
  - (4) measurement of angle between two lines.
  - (5) Question not attempted
51. The steady-state non-equilibrium temperature reached when a small amount of water is contacted under adiabatic conditions by a continuous stream of gas, is called -
- (1) Eutectic temperature
  - (2) Wet bulb temperature
  - (3) Dew point temperature
  - (4) Dry bulb temperature
  - (5) Question not attempted
52. What is the slope of Class IV land under Land Capability Classification?
- (1) 3-4%
  - (2) 0-1%
  - (3) 1-3%
  - (4) 5-10%
  - (5) Question not attempted
53. Most of the rivers in arid zones are of -
- (1) Ephemeral stream
  - (2) Intermittent stream
  - (3) Perennial stream
  - (4) Dry season stream
  - (5) Question not attempted
54. The effective field capacity of a machine is a function of the -
- (1) weight of machine
  - (2) type of machine
  - (3) length of machine
  - (4) rated width of machine
  - (5) Question not attempted
55. What is the primary objective of "Parboiling" paddy?
- (1) To reduce the weight of the paddy
  - (2) To gelatinize the starch
  - (3) To remove the bran more easily
  - (4) To make the rice white and shiny
  - (5) Question not attempted

56. The main function of a fuse in the electrical circuit is .....
- (1) to protect from overload (2) to regulate the voltage  
 (3) to maintain the power (4) to regulate the resistance  
 (5) Question not attempted
57. Which of the following is used for housing and milking of cows in the same building?
- (1) Stanchion barn (2) Brooder house  
 (3) Cage house (4) Deep litter house  
 (5) Question not attempted
58. In a Shell and Tube Heat Exchanger, what is the primary purpose of Baffles?
- (1) To support the tubes and induce turbulence in the shell-side fluid for better heat transfer.  
 (2) To prevent the fluids from mixing.  
 (3) To act as a filter for solid particles.  
 (4) To reduce the weight of the exchanger.  
 (5) Question not attempted
59. Doubling the length of slope increases soil erosion by about -
- (1) 2.0 times (2) 2.4 times  
 (3) 3.0 times (4) 1.4 times  
 (5) Question not attempted
60. The difference between the advance and recession periods in surface irrigation at any point is known as -
- (1) Recession time (2) Irrigation period  
 (3) Infiltration period (4) Opportunity time  
 (5) Question not attempted
61. The flow in chute spillways is at -
- (1) super-critical velocities (2) sub-critical velocities  
 (3) laminar velocities (4) critical velocities  
 (5) Question not attempted
62. The soil that comes under Hydrologic Soil Group-A, indicates -
- (1) moderately low runoff potential (2) low runoff potential  
 (3) moderately high runoff potential (4) high runoff potential  
 (5) Question not attempted
63. The value of solar declination angle on 21<sup>st</sup> December in India is -
- (1)  $-23.00^\circ$  (2)  $+23.00^\circ$   
 (3)  $-23.45^\circ$  (4)  $+23.45^\circ$   
 (5) Question not attempted



64. Which of the following heat transfer occurs due to density difference caused by temperature gradient within the system?
- (1) Conduction (2) Natural Convection  
(3) Forced Convection (4) Radiation  
(5) Question not attempted
65. Which of the following refers to the classification of cleaned products into various quality fractions depending upon the various commercial values and other usages?
- (1) Grading (2) Cleaning  
(3) Sorting (4) Scalping  
(5) Question not attempted
66. The Agro-Processing Policy in Rajasthan was notified in the year .....
- (1) 2015 (2) 1989  
(3) 1998 (4) 2019  
(5) Question not attempted
67. What is the drawbar horsepower required by a 2 bottom mould board plough operating at speed of 1 meter per second and at a draft of 1500 kgf?
- (1) 18 hp (2) 22 hp  
(3) 20 hp (4) 24 hp  
(5) Question not attempted
68. In briquetting of loose biomass, the density -
- (1) is not at all affected. (2) gets decreased.  
(3) gets increased. (4) remains in equilibrium.  
(5) Question not attempted
69. Graded bunds are constructed for -
- (1) safe disposal of excess runoff in medium rainfall areas where soil is relatively pervious.  
(2) the safe disposal of excess runoff in high rainfall areas where soil is relatively impervious.  
(3) conservation of runoff in low rainfall areas where soil is impervious.  
(4) conservation of runoff in high rainfall areas where soil is pervious.  
(5) Question not attempted
70. A line joining two fixed points on the main survey line is called -
- (1) Base line (2) Contour line  
(3) Tie line (4) Check line  
(5) Question not attempted
71. The volume of water discharged per unit of time from the well is called -
- (1) Specific capacity (2) Drawdown  
(3) Specific retention (4) Well yield  
(5) Question not attempted

72. The system adopted for surface drainage of sloping lands, is -
- (1) Cross slope ditch system
  - (2) Parallel field ditch system
  - (3) Random ditch system
  - (4) Bedding system
  - (5) Question not attempted
73. If  $M$  is the moisture content (percent dry basis) at any time during drying,  $M_e$  is the equilibrium moisture content (percent dry basis) and  $M_0$  is the initial moisture content (percent dry basis); then Moisture Ratio can be expressed by -
- (1)  $(M - M_e) / (M_0 - M_e)$
  - (2)  $(M_e - M_0) / (M - M_e)$
  - (3)  $(M_0 - M_e) / (M - M_e)$
  - (4)  $(M - M_0) / (M - M_e)$
  - (5) Question not attempted
74. A bucket elevator is preferred for -
- (1) short distance horizontal conveyance of bulk grain.
  - (2) vertical conveyance of bulk grain.
  - (3) conveyance of viscous material.
  - (4) long distance horizontal conveyance of bulk grain.
  - (5) Question not attempted
75. The channel type terrace is mostly used on soils where -
- (1) conservation of water is of prime importance.
  - (2) controlled removal of water is of prime importance.
  - (3) stabilization of vegetative cover is of prime importance.
  - (4) reduction of slope of land is of prime importance.
  - (5) Question not attempted
76. The withdrawal of water from a storage built-up in a basin in a hydrograph starts from -
- (1) the point of inflection of the recession limb.
  - (2) the point of inflection of the rising limb.
  - (3) the peak of the hydrograph.
  - (4) the point of the start of the base flow.
  - (5) Question not attempted
77. Water held tightly to the surface of soil particles by adsorption forces are known as -
- (1) Free water
  - (2) Hygroscopic water
  - (3) Capillary water
  - (4) Gravitational water
  - (5) Question not attempted
78. A drainage canal discharges 0.2 cumec (cubic meter per second) and drains 360 hectares. What is the drainage coefficient of the land?
- (1) 1.2 mm
  - (2) 2.4 mm
  - (3) 4.8 mm
  - (4) 0.6 mm
  - (5) Question not attempted

79. The term used to describe the change in front and rear wheel reactions when a tractor pulls a drawbar load is called -
- (1) Tractive efficiency
  - (2) Rolling resistance
  - (3) Wheel slip
  - (4) Weight transfer
  - (5) Question not attempted
80. A wheel hoe is used for -
- (1) interculture operations in between rows of crops.
  - (2) interculture operations when crop is sown by broadcasting method.
  - (3) harvesting the crop.
  - (4) seed bed preparation.
  - (5) Question not attempted
81. Direct combustion of biomass for immediate useful heat is -
- (1) fermentation
  - (2) gasification
  - (3) incineration
  - (4) condensation
  - (5) Question not attempted
82. Attrition mills are also known as -
- (1) Rod mill
  - (2) Plate mill
  - (3) Hammer mill
  - (4) Ball mill
  - (5) Question not attempted
83. Which one is not a component of a tractor hydraulic system?
- (1) Valves
  - (2) Pump
  - (3) Drawbar
  - (4) Accumulators
  - (5) Question not attempted
84. The reduction in value of a machine caused by obsolescence, wear, weathering, accidental damage, etc. is known as -
- (1) Depreciation cost
  - (2) Insurance cost
  - (3) Interest cost
  - (4) Fixed cost
  - (5) Question not attempted
85. Which of the following is not a temporary check dam?
- (1) Woven wire check dam
  - (2) Brushwood check dam
  - (3) Plank and slab check dam
  - (4) Masonry check dam
  - (5) Question not attempted

86. Critical moisture content in drying, marks the transition between -
- (1) heating and cooling rate period.
  - (2) constant rate and falling rate period.
  - (3) internal and external diffusion rate period.
  - (4) freezing and thawing rate period.
  - (5) Question not attempted
87. The strength and stability of the component parts of masonry structures are designed under -
- (1) Hydraulic design
  - (2) Hydrologic design
  - (3) Geo-technical design
  - (4) Structural design
  - (5) Question not attempted
88. Propeller pumps are -
- (1) Impeller pumps
  - (2) Radial flow pumps
  - (3) Volute pumps
  - (4) Axial and mixed flow pumps
  - (5) Question not attempted
89. A disk harrow which has four gangs of disk blades that leaves the field more nearly level is called as -
- (1) Right hand offset
  - (2) Offset
  - (3) Single acting
  - (4) Tandem
  - (5) Question not attempted
90. An area is classified as a drought prone area, if the probability P of occurrence of a drought is -
- (1)  $0.2 \leq P \leq 0.40$
  - (2)  $0.0 < P \leq 0.10$
  - (3)  $0.1 \leq P < 0.15$
  - (4)  $0.4 < P \leq 1.0$
  - (5) Question not attempted
91. Specific yield is the property of -
- (1) Confined aquifer
  - (2) Semi-confined aquifer
  - (3) Perched aquifer
  - (4) Unconfined aquifer
  - (5) Question not attempted
92. Lysimeter is used to measure .....
- (1) Evaporation
  - (2) Evapotranspiration
  - (3) Infiltration
  - (4) Runoff
  - (5) Question not attempted
93. In border irrigation method, the length of border strip for clay loam soil is -
- (1) 60 to 100 metres
  - (2) 30 to 60 metres
  - (3) 150 to 300 metres
  - (4) 100 to 120 metres
  - (5) Question not attempted

94. Hammer mills reduce the size mainly by -
- (1) attrition (2) compression  
(3) impact (4) cutting  
(5) Question not attempted
95. The Z-value in thermal processing represents -
- (1) temperature rise to reduce D-value by 90%. (2) time to kill 90% microbes.  
(3) temperature rise to kill 90% microbes. (4) temperature rise to reduce D-value by 10%.  
(5) Question not attempted
96. In 'Warabandi' system of water distribution in command areas, water is supplied to the farmers through -
- (1) Minor distributary (2) Field channel  
(3) Major distributary (4) Water course  
(5) Question not attempted
97. The ratio of lateral pressure to vertical pressure in silo due to grain having angle of internal friction as 'A' is -
- (1)  $(1 + \sin A)/(1 - \sin A)$  (2)  $\sin A/(1 + \sin A)$   
(3)  $(1 - \sin A)/(1 + \sin A)$  (4)  $\sin A/(1 - \sin A)$   
(5) Question not attempted
98. Natural circulation solar water heater works on the principle of -
- (1) Pressurizing (2) Vacuuming  
(3) Thermosiphoning (4) Capillary action  
(5) Question not attempted
99. The device used to prevent fire from contact between dry vegetation and hot exhaust pipes or from the emission of hot carbon particles in the exhaust stream, is called -
- (1) Protector (2) Spark arrester  
(3) Spark plug (4) Muffler  
(5) Question not attempted
100. Which among the following is not a part of disc plough?
- (1) Coulter (2) Concave disc  
(3) Furrow wheel (4) Disc bearing  
(5) Question not attempted

101. Kinetic energy of raindrops as compared to that of runoff is -
- (1) 156 times more (2) 356 times more  
 (3) 256 times more (4) 56 times more  
 (5) Question not attempted
102. Which of the following method of survey is the most accurate?
- (1) Chain Survey Method  
 (2) Grid Method  
 (3) Transit Method  
 (4) Plane Table Method  
 (5) Question not attempted
103. In drop spillways, the wing walls are constructed at the angle of ..... to the outlet centre line.
- (1) 45° (2) 60°  
 (3) 30° (4) 90°  
 (5) Question not attempted
104. Which of the following is/are the impact/s of agricultural mechanisation in farming operations?
- (A) Reduction in human drudgery  
 (B) Reduction in cost of cultivation  
 (C) Timeliness of field operation  
 (D) Employment generation through custom hiring
- (1) All (A), (B), (C) and (D) are correct (2) Only (A) and (B) are correct  
 (3) Only (A) is correct (4) Only (A), (B) and (C) are correct  
 (5) Question not attempted
105. The basic factor that does not influence the design of sub-surface drainage design is -
- (1) Infiltration and percolation rate (2) Leaching requirement  
 (3) Size of the drainage area (4) Hydraulic conductivity  
 (5) Question not attempted
106. Which size reduction law states that the energy required in crushing is proportional to the new surface area created?
- (1) Hooke's Law (2) Kick's Law  
 (3) Bond's Law (4) Rittinger's Law  
 (5) Question not attempted
107. Steam Economy in an evaporation system is defined as the ratio of -
- (1) kg of water vaporized to kg of steam fed. (2) kg of steam fed to kg of final product.  
 (3) kg of final product to kg of steam fed. (4) kg of steam fed to kg of water vaporized.  
 (5) Question not attempted


108. On farm field drainage system consisting of graded channels that collects excess water from the field is known as -
- (1) Intermediate drain (2) Relief drain  
 (3) Herringbone drain (4) Mole drain  
 (5) Question not attempted
109. Rasp bar is a type of -
- (1) Furrow opener (2) Cylinder  
 (3) Nozzle (4) Cutter  
 (5) Question not attempted
110. The coldest point in a canned food container is generally located at -
- (1) Geometric centre (2) Top centre  
 (3) Container wall (4) Bottom centre  
 (5) Question not attempted
111. Which of the following documents are accompanied with detailed cost estimate of a building for technical sanction?
- (A) Drawing  
 (B) Specification  
 (C) Calculation and design
- (1) All (A), (B) and (C) (2) Only (A) and (C)  
 (3) Only (A) and (B) (4) Only (B) and (C)  
 (5) Question not attempted
112. ICAR - Indian Institute of Soil & Water Conservation is located at -
- (1) New Delhi (2) Karnal  
 (3) Dehradun (4) Jodhpur  
 (5) Question not attempted
113. Most mould board ploughs are designed to turn the furrow slices only to the -
- (1) left (2) back  
 (3) right (4) front  
 (5) Question not attempted
114. The minimum wind velocity required to initiate movement of most erodible soil particles of 0.1 mm at a 30 cm height is -
- (1) 25 km/hr (2) 10 km/hr  
 (3) 20 km/hr (4) 16 km/hr  
 (5) Question not attempted

115. Under normal working conditions, the maximum rate of emission by drippers is -
- (1) 15 litres/hr or more (2) 5 litres/hr  
 (3) 10 litres/hr (4) less than 2 litres/hr  
 (5) Question not attempted
116. Nacelle is a term associated with -
- (1) Bio-energy (2) Solar energy  
 (3) Wind energy (4) Hydro energy  
 (5) Question not attempted
117. In large scale, grading task with modern earth moving equipment's -
- (1) cut-fill ratio must be equal to one. (2) cut-fill ratio must be less than one.  
 (3) cut-fill ratio should be greater than one. (4) cut-fill ratio must be equal to or less than one.  
 (5) Question not attempted
118. In which type of spillways, temporary storage of runoff on upstream of structure is provided?
- (1) Chute spillways (2) Drop inlet spillways  
 (3) Drop spillways (4) Pipe spillways  
 (5) Question not attempted
119. In hydraulic jump, the velocity of flow passes from -
- (1) critical to super-critical state (2) sub-critical to super-critical state  
 (3) super-critical to sub-critical state (4) critical to sub-critical state  
 (5) Question not attempted
120. Trans-esterification is a process where the raw vegetable oils, in presence of catalyst, are treated with alcohol to form -
- (1) Ethanol (2) Briquettes  
 (3) Biodiesel (4) Hydrocarbon oil  
 (5) Question not attempted
121. Darcy's law is applicable so long as the flow is -
- (1) Turbulent (2) Laminar  
 (3) Critical (4) With Reynolds number  $> 1$   
 (5) Question not attempted
122. What is the primary goal of blanching?
- (1) To cook the vegetables (2) To increase the calorie count  
 (3) To add artificial colors (4) To inactivate enzymes  
 (5) Question not attempted

123. Interceptor drain helps to control water logging by -
- (1) lowering the water table
  - (2) allowing vertical drainage
  - (3) intercepting the water coming from other areas
  - (4) intercepting surface water
  - (5) Question not attempted
124. In sensible heating and cooling of air -
- (1) Wet Bulb Temperature, Enthalpy and Relative Humidity remains constant.
  - (2) Wet Bulb Temperature, Enthalpy and Relative Humidity changes.
  - (3) Humidity Ratio, Wet Bulb Temperature and Enthalpy remains constant.
  - (4) Humidity Ratio, Wet Bulb Temperature and Enthalpy changes.
  - (5) Question not attempted
125. Which type of converters are used to govern battery charging/discharging in case of solar PV system?
- (1) AC-DC converters
  - (2) DC-DC converters
  - (3) DC-AC converters
  - (4) AC voltage controller
  - (5) Question not attempted
126. Residual Sodium Carbonate (RSC) value for safe irrigation is -
- (1) 1.35 to 2.5 mEq/Litre
  - (2) 2.5 to 5.0 mEq/Litre
  - (3) 5 mEq/Litre
  - (4) less than 1.25 mEq/Litre
  - (5) Question not attempted
127. Which type of heat exchanger is most commonly used for low viscosity fluids for heat transfer due to its high efficiency and ease of cleaning?
- (1) Shell and Tube Heat Exchanger
  - (2) Plate Heat Exchanger
  - (3) Spiral Heat Exchanger
  - (4) Jacket Kettles
  - (5) Question not attempted
128. The optimum temperatures recommended for mesophilic and thermophilic micro-organisms for anaerobic digestion of organic wastes are -
- (1) 35°C and 15°C respectively
  - (2) 15°C and 35°C respectively
  - (3) 55°C and 35°C respectively
  - (4) 35°C and 55°C respectively
  - (5) Question not attempted
129. A showery precipitation in the form of irregular pellets or lumps of ice of size more than 8 mm are called -
- (1) Hail
  - (2) Drizzle
  - (3) Raindrop
  - (4) Sleet
  - (5) Question not attempted

130. One cumec-day discharge is equal to -
- (1) 4.86 ha-m (2) 6.84 ha-m  
 (3) 6.48 ha-m (4) 8.64 ha-m  
 (5) Question not attempted
131. Water horsepower of centrifugal pump of 15 liters/sec capacity and 30 m total head will be equal to -
- (1) 3.0 (2) 4.0  
 (3) 5.0 (4) 6.0  
 (5) Question not attempted
132. The ogee type conduit is provided in -
- (1) Drop spillways (2) Conduit spillways  
 (3) Chute spillways (4) Drop inlet spillways  
 (5) Question not attempted
133. The mass curve of rainfall is a plot of -
- (1) accumulated precipitation against time. (2) discharge against time.  
 (3) rainfall against time. (4) rainfall intensity against time.  
 (5) Question not attempted
134. The overfall height of a temporary check dam should not be more than -
- (1) 75 cm (2) 1.5 m  
 (3) 1.0 m (4) 1.25 m  
 (5) Question not attempted
135. A sprayer is classified as Ultra Low Volume (ULV) sprayer when the spray liquid applied is -
- (1) between 10 to 50 l/ha (2) less than 5 l/ha  
 (3) between 50 to 400 l/ha (4) more than 400 l/ha  
 (5) Question not attempted
136. Fill factor is associated with -
- (1) wind blade (2) biogas generation  
 (3) solar cell (4) hydro power  
 (5) Question not attempted
137. Which of the pair is not correctly matched in reference to irrigated command?
- (1) Delta - cubic meter (2) Intensity of irrigation - percent  
 (3) Duty - litres per second per hectare (4) Base period - days  
 (5) Question not attempted
138. Leakage factor in semi-confined aquifer has the dimensions of -
- (1) length (2) time  
 (3) resistance (4) velocity  
 (5) Question not attempted

139. What is threshold velocity for erosion due to wind for a particle size of 0.1 mm at a height of 30 cm?  
(1) 8 km/hr (2) 16 km/hr  
(3) 12 km/hr (4) 20 km/hr  
(5) Question not attempted
140. A gully having 3 m depth, bed width not greater than 18 m and variable side slope comes under the category of -  
(1) medium gullies (2) small gullies  
(3) deep and narrow gullies (4) very small gullies  
(5) Question not attempted
141. Which atomization of fluid depends upon liquid pressure to supply the atomizing energy?  
(1) Gas atomization (2) Hydraulic atomization  
(3) Centrifugal atomization (4) Gravity atomization  
(5) Question not attempted
142. The mass that can be added or removed from a tractor for the purpose of changing traction, stability or compacting effect on the soil is called -  
(1) Bar point (2) Biomass  
(3) Balleno (4) Ballast  
(5) Question not attempted
143. The drilling fluid used in air rotary drilling is -  
(1) clear water (2) water mixed with additive  
(3) compressed air (4) water mixed with bentonite  
(5) Question not attempted
144. Heating value of the gas produced in the gasifier is generally in the range of -  
(1) 350-600 kcal/m<sup>3</sup> (2) 2100-2200 kcal/m<sup>3</sup>  
(3) 500-800 kcal/m<sup>3</sup> (4) 950-1200 kcal/m<sup>3</sup>  
(5) Question not attempted
145. A knife of a reciprocating mower is said to be in proper register when the knife sections are -  
(1) moving freely without contact  
(2) fully outside the guards  
(3) centered in the guards at each end of the stroke  
(4) exactly touching the guards  
(5) Question not attempted
146. Rational method is commonly used in predicting ..... of small watersheds.  
(1) direct runoff (2) cumulative runoff  
(3) runoff excess (4) peak rate of runoff  
(5) Question not attempted

147. The strip of some grass or legume crop laid out between contour strips of crops in regular rotations are termed as -
- (1) Buffer strip cropping
  - (2) Field strip cropping
  - (3) Crop rotation
  - (4) Contour strip cropping
  - (5) Question not attempted
148. In contour bunding, how much area is lost under the bund and is not available for cultivation?
- (1) 5%
  - (2) 8%
  - (3) 10%
  - (4) 15%
  - (5) Question not attempted
149. Direct solar irradiance is measured by -
- (1) Spectrometer
  - (2) Lactometer
  - (3) Altimeter
  - (4) Pyrheliometer
  - (5) Question not attempted
150. The part of engine which changes the reciprocating motion of the piston to rotary motion in the powertrain is -
- (1) Crankshaft
  - (2) Connecting rod
  - (3) Camshaft
  - (4) Gudgeon pin
  - (5) Question not attempted
- 

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# Space for Rough Work



Space for Rough Work



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