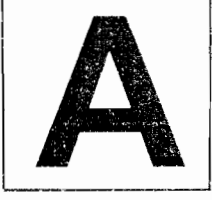


# महाराष्ट्र कृषी सेवा मुख्य परीक्षा - 2012



परीक्षा दि.  
27 जुलै, 2012

2012

CODE : DO2

प्रश्नपुस्तिका क्रमांक

BOOKLET NO.

प्रश्नपुस्तिका

कृषि विज्ञान

एकूण प्रश्न : 100

एकूण गुण : 200

वेळ : 1 ( एक ) तास

## सूचना

(1) सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. असा तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.

(2) आपला परीक्षा-क्रमांक ह्या चौकोनात न विसरता बॉलपेनने लिहावा.

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	↑ केंद्राची संकेताक्षरे							↑ शेवटचा अंक	

- (3) वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे न विसरता नमूद करावा.
- (4) या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तरक्रमांक नमूद करताना तो संबंधित प्रश्नक्रमांकांमोड छयांकित करून दर्शविला जाईल याची काळजी घ्यावी. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.
- (5) सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नांकडे वळावे. अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.
- (6) उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही.
- (7) प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवारांच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच "उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची दिलेल्या चार उत्तरांपैकी सर्वात योग्य उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चार चुकीच्या उत्तरांसाठी एका प्रश्नाचे गुण वजा करण्यात येतील".

## ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवाराला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या "परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम-82" यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरुद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

**पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा**

पर्यवेक्षकांच्या सूचनेविना हे सील उघडू नये

कच्चा कामासाठी जागा /SPACE FOR ROUGH WORK

DO2

2

जे १५ दिवस

A

कच्चा कामासाठी जागा /SPACE FOR ROUGH WORK

1. What is the drainage of 1 ha cm water ( $10^5$  litres) in 24 hrs equal to ?  
(1) 1157 Lps (2) 1.157 Lps (3) 11.57 Lps (4) 115.7 Lps
- 
2. What are the small furrows formed at known intervals parallel to the slope of the land for draining out excess water from the soil called ?  
(1) Bedding (2) Land smoothing  
(3) Random field ditch method (4) Parallel field ditch system
- 
3. Who considered yield, profit and frequency of crop failure, as field indicators for farmer's satisfaction while computing sustainable index ?  
(1) Gomez (2) Hargroove (3) Reddy (4) Prasad
- 
4. Which of the following components does a water harvesting system have ?  
(1) Catchment area (2) Storage facility  
(3) Command area (4) (1), (2) and (3) above
- 
5. What happens if crop seed is sown very deep in the soil ?  
(1) Early germination.  
(2) Uniform plant population.  
(3) The young seedlings may not be able to push their shoots above the thick soil layer.  
(4) Vigorous seedlings.
- 
6. Which weed is associated with tobacco crop ?  
(1) *Striga densiflora* (2) *Phalaris minor*  
(3) *Solanum nigrum* (4) *Orabanche indica*
- 
7. Which of the following statements is applicable for rainfed farming ?  
(1) Cultivation of crops in areas receiving less than 750 mm rainfall per annum.  
(2) Dry spells are most common and crop failures are more frequent.  
(3) Cultivation of crops where dry spells occur but crop failures are less frequent.  
(4) Cultivation of crops where crop failures are rare and drainage is the problem.
- 
8. In which of the following crops thinning and earthing up is necessary for higher productivity ?  
(1) Sugarcane (2) Sugarbeet (3) Potato (4) Sweet Potato
- 

SPACE FOR ROUGH WORK

P.T.O.

9. Suggest a suitable crop under contingent crop planning under late onset of monsoons (8 to 15<sup>th</sup> July) in Maharashtra.
- (1) Green gram      (2) Pigeon pea      (3) Black gram      (4) Groundnut
- 
10. How does the soil moisture move in an area ?
- (1) High tension to area of low tension.  
(2) Higher elevation to lower elevation.  
(3) Low tension to area of high tension.  
(4) Lower elevation to higher elevation.
- 
11. What variety of pigeon pea is recommended for Maharashtra ?
- (1) BM - 4              (2) BDU - 1              (3) BSMR - 736              (4) TAU - 1
- 
12. What is the role of an Agronomist in Agriculture ?
- (1) Coordinator of different subject matter specialists.  
(2) Convenor  
(3) Producer of maximum yield with maximum cost  
(4) None of the above
- 
13. What should be the right choice of base and inter crops on medium deep soils in regions with uni-modal rainfall pattern ?
- (1) The base crop should be of shorter duration than the companion crop.  
(2) The base crop should be of longer duration than the companion crop.  
(3) The choice of crop should be such that the peak growth period of both the crops should coincide with rainfall peaks.  
(4) None of the above
- 
14. In our country, which surface method of irrigation is the most widely practised for field crops ?
- (1) Check basin method                      (2) Basin method  
(3) Border strip method                      (4) Wild flooding
- 
15. Which of the following are the major sunflower growing states ?
- (1) Karnataka, Maharashtra, Andhra Pradesh.  
(2) Karnataka, Madhya Pradesh, Punjab.  
(3) Andhra Pradesh, Rajasthan, Tamil Nadu.  
(4) Bihar, Andhra Pradesh, Maharashtra.
- 

**SPACE FOR ROUGH WORK**

16. What type of drought is it in which the actual rainfall falls short below 75 percent of the normal ?
- (1) Agricultural drought                      (2) Meteorological drought  
(3) Hydrological drought                      (4) Contingent drought
- 
17. Modern concept of tillage includes \_\_\_\_\_ .
- (1) Minimum tillage                              (2) Zero tillage  
(3) Conservation tillage                        (4) (1), (2) and (3) above
- 
18. At what depth, the seeds of semi dwarf varieties of wheat crop could be sown ?
- (1) 2 - 3 cm                      (2) 5 - 6 cm                      (3) 7 - 8 cm                      (4) 8 - 9 cm
- 
19. Which of the following is another term for the Sustainable Agriculture ?
- (1) Alternative farming                        (2) Eco-farming  
(3) Permeaculture                              (4) (1), (2) and (3) above
- 
20. What is the advantage of a conservation tillage ?
- (1) Reduced tillage machinery maximizes soil compaction.  
(2) Low infiltration of water and high evaporation.  
(3) Low risk of pests and diseases.  
(4) Surface crop cover reduces soil erosion.
- 
21. Which process is responsible for the loss of about 60 to 75 percent of the rainfall ?
- (1) Evaporation                                      (2) Transpiration  
(3) Evapotranspiration                        (4) Percolation
- 
22. Which of the following is an example of a film forming antitranspirant ?
- (1) Atrazine    (2) Mobileaf  
(3) Kaolin    (4) Phenylmercuric acetate
- 
23. Which crop is suitable for oil as well as fibre purpose ?
- (1) Sunflower                      (2) Mustard                      (3) Linseed                      (4) Safflower
- 
24. About how many root slips or stem cuttings are required for planting napier grass in one hectare area ?
- (1) 18800                      (2) 33800                      (3) 27800                      (4) 42800
- 

**SPACE FOR ROUGH WORK**

**P.T.O.**

25. What is a period of medium range forecast for Agriculture ?  
(1) Few hours to one day (2) 24 hours to less than three days  
(3) 3 to 10 days (4) More than 10 days
- 
26. Among the following, which is a bio-herbicide ?  
(1) Oryzalin (2) Lactofen (3) Tripose (4) Metribuzin
- 
27. What is the oil and protein content of groundnut kernel ?  
(1) 50% oil and 18 - 20% protein (2) 45% oil and 26% protein  
(3) 33 - 47% oil and 36% protein (4) 24 - 36% oil and 40 - 45% protein
- 
28. In winter, what will be the temperature at equatorial tropopause ?  
(1)  $-60^{\circ}\text{C}$  (2)  $-70^{\circ}\text{C}$  (3)  $-80^{\circ}\text{C}$  (4)  $-90^{\circ}\text{C}$
- 
29. In which crop, flower/inflorescence is called as arrow ?  
(1) Flower primordia initiation in wheat.  
(2) Flower of Maize.  
(3) Flower of Sorghum.  
(4) Flower/inflorescence of sugarcane.
- 
30. What is normal lapse rate in Troposphere ?  
(1)  $6.5^{\circ}\text{F}/1000\text{ ft}$  (2)  $5.4^{\circ}\text{F}/1000\text{ ft}$   
(3)  $3.6^{\circ}\text{F}/1000\text{ ft}$  (4)  $4.0^{\circ}\text{F}/1000\text{ ft}$
- 
31. Which of the following agencies has been entrusted by the Government of India with the task of preparation of a feasibility report of interlinking of rivers in India ?  
(1) National Water Development Agency (NWDA)  
(2) Irrigation Commission of India  
(3) Central Ground Water Board (CGWB)  
(4) National Water Board
- 
32. Among the following which is a component of farming system ?  
(1) Ducker (2) Biogas plant (3) Coir work (4) (1), (2) and (3) above
- 
33. What is the main advantage of Sustainable Agriculture ?  
(1) Ecological balance (2) Nutritious food without pesticide residue  
(3) Clean environment (4) (1), (2) and (3) above
- 

SPACE FOR ROUGH WORK

34. How much is the annual yield of green fodder from the Napier grass ?  
(1) 1200 - 1500 quintals/ha (2) 250 - 300 quintals/ha  
(3) 800 - 1000 quintals/ha (4) 800 - 1100 quintals/ha
- 
35. Which is the appropriate time of ploughing operation ?  
(1) During summer season.  
(2) When 25 - 50% available soil moisture is depleted.  
(3) Soil has completely dried.  
(4) Soil is in wet condition.
- 
36. Before sunrise and sunset which solar radiation penetrates into plant canopies more effectively ?  
(1) Direct solar radiation (2) Diffused solar radiation  
(3) Global solar radiation (4) Reflected solar radiation
- 
37. Which soil tillage aims at reducing the tillage operation to the minimum necessary for ensuring the good seed bed and rapid germination of seed ?  
(1) Primary tillage (2) Minimum tillage  
(3) Secondary tillage (4) Rowzone tillage
- 
38. Which is the important developmental activity in resource management for dry land region ?  
(1) Deforestation (2) Crop production  
(3) Use of fertilizers (4) Watershed management
- 
39. In which cropping system the term component crop is used ?  
(1) Inter cropping system (2) Sole cropping system  
(3) Ratoon cropping system (4) Monoculture cropping system
- 
40. Which is the most serious pest of bengalgram crop ?  
(1) Cutworm (2) Aphids (3) Pod borer (4) None of these
- 
41. What is a fertilizer containing a single nutrient, called ?  
(1) Straight fertilizer (2) Compound fertilizer  
(3) Fertilizer mixture (4) None of these
- 

SPACE FOR ROUGH WORK

P.T.O.

42. The maximum water vapour movement in soil occurs when the soil is :
- (1) at field capacity (2) at maximum water holding capacity  
(3) at just below the wilting point (4) at wilting point
- 
43. Among the major plant nutrients, which of the following nutrient content in soil solution is the least variable and the lowest ?
- (1) Phosphorus (2) Potassium (3) Magnesium (4) Sulphur
- 
44. Which is/are predominant ionic species of phosphate in soil at pH 7.2 ?
- (1)  $\text{H}_2\text{PO}_4^-$  (2)  $\text{HPO}_4^{=}$   
(3)  $\text{H}_2\text{PO}_4^-$  and  $\text{HPO}_4^{=}$  (4)  $\text{PO}_4^{=}$
- 
45. Which of the following materials is added to prepare a mixed fertilizer with good drilling conditions and reduced caking ?
- (1) Coal ash (2) Lime stone (3) Peat (4) Dolomite
- 
46. The \_\_\_\_\_ is that water which lies between wilting coefficient and field capacity.
- (1) available water (2) unavailable water  
(3) superfluous water (4) none of these
- 
47. Which of the following organic manures contains highest amount of nitrogen ?
- (1) Neem cake (2) Castor cake  
(3) Linseed cake (4) Groundnut cake
- 
48. Fill in the blank correctly.  
When gypsum is used as a reclaiming agent, calcium replaces the exchangeable \_\_\_\_\_ in alkali soils.
- (1) Boron (2) Magnesium (3) Sodium (4) Potassium
- 
49. Which of the following is the process of decomposition of organic matter and synthesis of new organic substances ?
- (1) Horizonation (2) Eluviation (3) Humification (4) Illuviation
- 
50. Which of the following crops is a low salt tolerant crop ?
- (1) Cotton (2) Wheat (3) Soyabean (4) Maize
- 

**SPACE FOR ROUGH WORK**



51. Which of the following types of soils will adsorb more pesticides and increase soil pollution and health hazards ?
- (1) A fine textured soil dominated with Kaolinite.
  - (2) A coarse textured soil dominated with Kaolinite.
  - (3) A fine textured soil dominated with Montmorillonite.
  - (4) A coarse textured soil dominated with Montmorillonite.
- 
52. What small but significant quantities of soluble compounds does the soil solution contain ?
- (1) Organic
  - (2) Inorganic
  - (3) Organic and Inorganic
  - (4) None of these
- 
53. Which of the following is a symbiotic bacterium, colonizing on the roots of specific legumes to form root nodules for fixing atmospheric nitrogen ?
- (1) Azotobacter
  - (2) Azospirillum
  - (3) Rhizobium
  - (4) Blue - Green Algae
- 
54. What is the chemical combination of water molecules with a particular mineral termed as ?
- (1) Solution
  - (2) Hydration
  - (3) Hydrolysis
  - (4) Oxidation
- 
55. \_\_\_\_\_ denotes the status of soil with respect to the amount and availability of elements to a plant necessary for its growth.
- (1) Soil Productivity
  - (2) Soil Fertility
  - (3) Soil Chemistry
  - (4) None of these
- 
56. Which of the following minerals has a greater anion adsorbing and exchanging capacity ?
- (1) Kaolinite
  - (2) Illite
  - (3) Montmorillonite
  - (4) Vermiculite
- 
57. What proportion of clay content in soil seems to be desirable for dry land farming ?
- (1) 30 to 40%
  - (2) 40 to 50%
  - (3) 50 to 60%
  - (4) More than 60%
- 
58. What is the process of removal or loss of oxygen called ?
- (1) hydration
  - (2) hydrolysis
  - (3) oxidation
  - (4) reduction
- 
59. Which is a secondary nutrient from among the following ?
- (1) Iron
  - (2) Zinc
  - (3) Boron
  - (4) Sulphur
- 

SPACE FOR ROUGH WORK

P.T.O.

60. Which of the following constituents of organic matter in soil are most rapidly decomposed ?
- (1) Celluloses and hemicelluloses                      (2) Fats, waxes and resins  
(3) Carbohydrates and simple proteins                (4) Lignins
- 
61. Fill in the blank appropriately.  
In \_\_\_\_\_ seed metering mechanism, vertical plate is provided with radially projected arms, which drop the larger seeds like potato in furrows with the help of suitable jaws.
- (1) fluted feed type    (2) cell feed mechanism  
(3) picker wheel type    (4) internal double run type
- 
62. What is the Internal double run type seed metering device suitable for ?
- (1) Large size seed    (2) Small size seed  
(3) Sugar beat seeds     (4) Both (1) and (2)
- 
63. In four stroke engine, one power stroke is generated after \_\_\_\_\_ revolution of crankshaft.
- (1) Each    (2) Two    (3) Four    (4) Half
- 
64. The power developed by the engine and is available at the end of crankshaft is called \_\_\_\_\_.
- (1) IHP    (2) BHP    (3) DBHP    (4) FHP
- 
65. What is the forward end of cutting edge of share which actually penetrates into the soil called ?
- (1) Gunnel    (2) Share point    (3) Wing of share    (4) Cleavage
- 
66. On what factors threshing efficiency of a thresher depends ?
- (a) Cylinder concave clearance                              (b) Type of crop  
(c) Weather conditions    (d) Moisture content of crop
- (1) (a) and (b)    (2) (a), (b) and (c)  
(3) (a), (b) and (d)    (4) All of these
- 
67. What is the perpendicular distance between point of share and lower position of the beam of plough called ?
- (1) Throat clearance    (2) Horizontal clearance  
(3) Vertical clearance    (4) Share point clearance
- 

**SPACE FOR ROUGH WORK**

68. The main purpose of puddling is to \_\_\_\_\_ .

- (1) reduce leaching of water
  - (2) kill the weeds
  - (3) facilitate transplanting of paddy seedlings
  - (4) all the above
- 

69. What is the concave clearance in the power thresher ?

- (a) Clearance between concave and beater or cylinder tip.
- (b) Clearance between concave and the blower.
- (c) Clearance between concave and the screen.
- (d) Clearance between beater or cylinder tip and blower.

Which of the above statements are correct ?

- (1) only (d)
  - (2) (a) and (b)
  - (3) only (a)
  - (4) (a), (b) and (d)
- 

70. What does the planter consist of ?

- (a) Hopper
- (b) Seed metering device
- (c) Land side
- (d) Frog

Which of the above options are correct ?

- (1) (a), (b) and (c) only
  - (2) (a) and (b) only
  - (3) (c) and (d) only
  - (4) (a), (b) and (d) only
- 

71. To separate mustard seed from wheat, the best type of separator is \_\_\_\_\_ .

- (1) indented cylinder separator
  - (2) specific gravity separator
  - (3) centrifugal separator
  - (4) spiral separator
- 

72. Janssen equation is related to \_\_\_\_\_ .

- (1) storage silo design
  - (2) size reduction
  - (3) grain transportation system
  - (4) grain handling
- 

73. Fill in the blank with the most appropriate option.

At present \_\_\_\_\_ is the most common material used for bottles and jars.

- (1) High density polyethylene
  - (2) Food grade PVC
  - (3) High impact polystyrene
  - (4) Low density polyethylene
- 

74. Which of the following is an indirect method of moisture determination ?

- (1) Infra - red method
  - (2) Dielectric method
  - (3) Air - oven method
  - (4) None of the above
- 

**SPACE FOR ROUGH WORK**

**P.T.O.**

75. To predict the lateral pressure in deep bins, which of the equations is used ?  
(1) Airy equation (2) Rankine's equation  
(3) Janssen's equation (4) All of the above
- 
76. What is the order of components in vapour compression refrigeration system ?  
(1) Compressor - evaporator - condensor - expansion valve.  
(2) Compressor - expansion valve - evaporator - condensor.  
(3) Compressor - condensor - expansion valve - evaporator.  
(4) Compressor - condensor - evaporator - expansion valve.
- 
77. Fill in the blank appropriately.  
\_\_\_\_\_ has a fan at the air discharge point which creates a vacuum or negative pressure within the machine.  
(1) Specific gravity separator (2) Aspirator  
(3) Indented cylinder separator (4) Spiral separator
- 
78. \_\_\_\_\_ is the most common type of heat exchanger used in HTST Pasteurization.  
(1) Tubular type (2) Barrel type (3) Plate type (4) Flat surface type
- 
79. The indented cylinder separators, separate the materials on the basis of \_\_\_\_\_.  
(1) Relative lengths (2) Roundness (3) Density (4) None of the above
- 
80. In winter season, due to moisture migration spoilage of grains occurs at the \_\_\_\_\_ of the bin.  
(1) bottom (2) top (3) centre (4) wall side
- 
81. Fill in the blanks appropriately.  
An elongated watershed will have a \_\_\_\_\_ bifurcation ratio and will result into a \_\_\_\_\_ peak flow compared to circular or normal shaped watershed of the same area.  
(1) higher, lower (2) lower, higher  
(3) same, same (4) none of the above
- 
82. What is the peak runoff rate of an area, if the runoff coefficient, rainfall intensity equals time of concentration and watershed areas are 0.3, 150 mm/h and 90,000 sq.metre respectively ?  
(1) 1.521 m<sup>3</sup>/s (2) 2.125 m<sup>3</sup>/s (3) 1.215 m<sup>3</sup>/s (4) 1.125 m<sup>3</sup>/s
- 

**SPACE FOR ROUGH WORK**

83. What is the principle of chain surveying ?  
(1) Radiation      (2) Intersection      (3) Resection      (4) Triangulation
- 
84. What is the shape index of a watershed having length along the main stream 1000 ms and size of watershed 5 square kilometres ?  
(1) 0.2      (2) 20.0      (3) 200.0      (4) 5000
- 
85. In high volume spraying, total volume of spray liquid applied amount to \_\_\_\_\_ litres per ha.  
(1) < 5      (2) 5 - 200      (3) 200 - 400      (4) > 400
- 
86. What assumptions are valid for determining peak runoff rate by rational method ?  
(a) Rainfall has occurred with uniform intensity for the duration atleast equal to time of concentration of the catchment area.  
(b) The infiltration rate of the soils in watershed is constant.  
(c) The rainfall intensity is uniform throughout the catchment.  
(d) The initial soil moisture is uniform in the watershed.  
(1) (a) and (c)      (2) (a) and (b)  
(3) (b) and (d)      (4) (a) and (d)
- 
87. There is a gully control structure, performing following functions :  
(a) Used as a principal spillway in case of farm ponds  
(b) It stabilizes gully grade  
(c) Used at lower end of water disposal system  
(d) Used as a culvert in forest roads  
Which structure is this ?  
(1) Chute spillway      (2) Drop inlet spillway  
(3) Straight drop spillway      (4) Graded bund
- 
88. If the runoff area increases, what will its effect be on both the rate and the volume per unit of a watershed area ?  
(1) it will increase      (2) it will decrease  
(3) it will remain unaffected      (4) becomes zero
- 
89. What is the volume of rainfall for which the water harvesting project is designed called ?  
(1) Designed rainfall      (2) Required rainfall  
(3) Expected rainfall      (4) Excess rainfall
- 

SPACE FOR ROUGH WORK

90. How is the incorrect holding of chain by a surveyor during the survey, categorised ?

- (1) Compensating errors                      (2) Cumulative errors  
(3) Human errors                                (4) None of the above
- 

91. For moderate slopes and small to moderate irrigation streams, the length of border for clay soils should be \_\_\_\_\_ meters.

- (1) 100 to 180            (2) 60 to 120            (3) 150 to 300            (4) None of these
- 

92. Priming is required to start :

- (1) reciprocating pump                      (2) centrifugal pump  
(3) jet pump                                      (4) axial pump
- 

93. The Christiansen equation for uniformity coefficient ( $C_u$ ) is expressed as :

- (1)  $C_u = 100 \left( 0.1 - \frac{\sum x}{mn} \right)$                       (2)  $C_u = 100 \left( 1.0 - \frac{\sum x}{mn} \right)$   
(3)  $C_u = 100 \left( 1.0 - \frac{\sum x^2}{mn} \right)$                       (4)  $C_u = 100 \left( 1.0 + \frac{\sum x}{mn} \right)$
- 

94. The flow over trapezoidal notch is proportional to \_\_\_\_\_. (H is head over the crest of notch)

- (1)  $H^{3/2}$                       (2) H                      (3)  $H^{1/2}$                       (4)  $H^{5/2}$
- 

95. The rate of discharge of irrigation pump (q) is calculated by the following relationship.

$$q = 27.78 \frac{AY}{RT}$$

Where, Y = \_\_\_\_\_

- (1) Duration of pumping                      (2) Depth of irrigation  
(3) Velocity of water in suction pipe      (4) Co-efficient of friction
- 

96. The primary objective/s of a well planned farm-stead is/are :

- (1) Sanitation                                      (2) Economy  
(3) Low maintenance cost                      (4) All of these
- 

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97. The presence of about 5 to 8 percent moisture content in sand increases the volume of sand by as much as \_\_\_\_\_.
- (1) 1 to 15 percent                      (2) 20 to 40 percent  
(3) 50 to 60 percent                      (4) 65 to 70 percent
- 
98. In barbed wire fencing, barbed wire is made up of \_\_\_\_\_ gauge wire.
- (1) 10                      (2) 14                      (3) 18                      (4) 22
- 
99. The "environment of green house" does not refer to \_\_\_\_\_.
- (1) Crop yield                      (2) Light  
(3) Air composition                      (4) Nature of root media
- 
100. Gutters in stanchion barn are usually \_\_\_\_\_ cms wide and \_\_\_\_\_ cms deep.
- (1) 25, 5                      (2) 35, 10                      (3) 45, 15                      (4) 55, 20
- 

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### सूचना — ( पृष्ठ 1 वरून पुढे.... )

- (8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या “परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82” यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.
- (9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षा कक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.

### नमुना प्रश्न

Q.No. 201. The Catch varies inversely with the size of the :

- |                 |             |
|-----------------|-------------|
| (1) nozzle      | (2) droplet |
| (3) obstruction | (4) sprayer |

ह्या प्रश्नाचे योग्य उत्तर “(3) obstruction” हे आहे. त्यामुळे या प्रश्नाचे उत्तर “(3)” होईल, आता खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक “③” चा कंस खालीलप्रमाणे पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201. ① ② ● ④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

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