कृषि सेवा (मुख्य) परीक्षा - 2017

प्रश्नपुस्तिका क्रमांक दि 17 डिसेंबर, 2017

BOOKLET No. 300149

प्रश्नपुस्तिका-III

संच क्र. **A**

U10

पेपर क्र. – 2

कृषि अभियांत्रिकी

वेळ : 1 (एक) तास

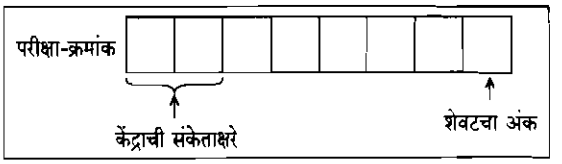
एकूण प्रश्न : 100

एकूण गुण : 200

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 चौकोनांत **न विसरता बॉलपेनने** लिहावा.



(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 प्रश्नक्रमांकासमोर छायांकित 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 उमेदवाराच्या 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 व्यक्तीविरूद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

SEAL

पर्यवेक्षकांच्या सूचनेविना हे सील उघडू नये

कच्च्या कामासाठी जागा/SPACE FOR ROUGH WORK

1. In drying, _____ causes movement of moisture from inside of kernel to the surface.
   (1) vapour pressure gradient (2) temperature gradient
   (3) humidity gradient (4) None of the above

2. The dry bulb temperature, wet bulb temperature and dew point temperature of moist air are equal when relative humidity (RH) is _____ percent.
   (1) zero (2) 10 (3) 50 (4) 100

3. The electrical resistance of grain depends upon
   (1) grain compaction
   (2) grain temperature
   (3) moisture present in grain
   (4) All of the above

4. The shape of a lemon fruit is classified as _____ spheroid.
   (1) oblate (2) prolate (3) ovate (4) obovate

5. The angle of repose _____ with an increase in the moisture content of food materials.
   (1) increases
   (2) decreases
   (3) either increases or decreases
   (4) remains unchanged

6. In Rheology, the Maxwell model is represented as
   (1) dashpot
   (2) spring
   (3) spring and dashpot in parallel
   (4) spring and dashpot in series

7. The economical spacing of roof trusses work out to be _____ of span.
   (1) $\frac{1}{3}$ to $\frac{1}{5}$ (2) $\frac{1}{6}$ to $\frac{1}{8}$ (3) $\frac{1}{9}$ to $\frac{1}{11}$ (4) $\frac{1}{12}$ to $\frac{1}{14}$

8. _____ is especially useful for removing lightweight infertile seeds from seed stock and hence improves seed germination.
(1) Screen cleaner (2) Specific gravity separator
(3) Spiral separator (4) Indented cylinder separator

9. In air screen cleaners, for cleaning of round shaped grains, _____ are used.
(1) top screen round holes and bottom screen slotted holes
(2) top screen slotted holes and bottom screen round holes
(3) top screen triangular holes and bottom screen slotted holes
(4) top screen slotted holes and bottom screen triangular holes

10. The hammer mill is assumed to reduce size by
(1) Impact (2) Compression
(3) Shearing (4) Crushing

11. Majority of HTST pasteurizers use _____ heat exchangers with sections for regenerative heating, heating and cooling.
(1) plate type (2) double pipe
(3) shell and tubes (4) shell and coil

12. Fan laws state that the pressure developed by a centrifugal pump varies as
(1) its rotational speed
(2) square of rotational speed
(3) cube of rotational speed
(4) independent on its rotational speed

13. Planck's law can be used for estimation of
(1) Time of freezing (2) Time of drying
(3) Time of boiling (4) Time of germination

14. The amount of heat conducted across unit area and unit thickness of a material in unit time for unit change in temperature is
(1) Enthalpy (2) Specific heat
(3) Thermal diffusivity (4) Thermal conductivity

15. _____ permits early harvest of crops.
(1) Storage (2) Cooling
(3) Drying (4) None of the above

16. The value of dry basis moisture content is _____ the wet basis moisture content.
(1) less than (2) equal to
(3) more than (4) None of the above

17. _____ properties may be defined as those which affect the behaviour of agricultural material under applied force.
(1) Thermal
(2) Mechanical
(3) Rheological
(4) None of the above

18. _____ properties may be defined as the science which deals with the deformation and flow of material under action of applied forces.
(1) Rheological
(2) Mechanical
(3) Thermal
(4) None of the above

19. The _____ separates materials on the basis of difference in length of various constituents.
(1) Air-screen cleaner
(2) Specific gravity separator
(3) Disk separator
(4) Spiral separator

20. The major purpose of blanching is to inactivate _____ which would otherwise lead to quality reduction in processed food.
(1) enzymes (2) micro-organisms
(3) yeast (4) insects

21. Wind speeds increase with height. Wind speeds have traditionally been measured at a standard height of _____ where they are found to be _____ greater, than close to the surface.

(1) 5·0 metres; 10 to 20%

(2) 7·0 metres; 15 to 25%

(3) 10·0 metres; 20 to 25%

(4) 8·0 metres; 15 to 20%

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22. The best suited material for the construction of transformer core is

(1) Silicon steel

(2) Hard steel

(3) Wrought iron

(4) Copper

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23. While conducting a short-circuit test on a transformer, the following side is short-circuited :

(1) High voltage side

(2) Low voltage side

(3) Primary side

(4) Secondary side

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24. _____ is one of the low cost fences that is widely used for confining diary cattle.

(1) Barbed wire fence

(2) Plain wire fence

(3) Welded wire fence

(4) Electric fence

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25. The core of a transformer is made up of laminations in order to

(1) Reduce hysteresis loss

(2) Reduce eddy current loss

(3) Reduce copper loss

(4) Reduce hysteresis and eddy current losses

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26. The most widely used material of a solar cell is

(1) Arsenic (2) Aluminium

(3) Silicon (4) Steel

27. As air moves across the surface of the Earth, its speed and direction changes by the local topography as well as by

(1) local heating

(2) local cooling

(3) Both (1) and (2)

(4) None of the above

28. Regarding testing of a transformer, the following statements are made :

a. Open circuit and short circuit tests can determine efficiency only.

b. Open circuit and short circuit tests are simple to conduct.

c. Power required to carry out open circuit and short circuit tests is very large compared with full-load output of a transformer.

d. Direct loading method can also be used to determine efficiency and regulation of a transformer.

Out of the above, following statement/s is/are true :

(1) a, b and d only (2) a and d only

(3) b, c and d only (4) b and d only

29. Biogas consists of

(1) Only methane

(2) Methane and CO_2 with same impurities

(3) A special organic gas

(4) None of the above

30. In this type of energy conversion system, it will have a cut-in speed, rated speed and cut-out speed.

(1) Solar (2) OTEC

(3) Wind (4) Thermal

31. The compressive strength of concrete used for different structures is in the range of

(1) 300 – 700 kg/cm^2 (2) 300 – 700 N/m-m^2

(3) 30 – 70 kg/cm^2 (4) 100 – 500 N/m-m^2

32. A building is to be constructed on alluvial soil having a bearing pressure of 5000 kg/sq.m. What shall be the width of masonry foundation having 4000 kg of dead load per running metre of the wall ?

(1) 0·4 m (2) 0·8 m

(3) 0·12 m (4) None of the above

33. The flooring material which is a mixture of linseed oil, gums and resins, pigments, wood floor, cork dust and other filling materials is termed as

(1) Linoleum (2) Hindaleum (3) Magnesite (4) Dolomite

34. Use of steel trusses is economical when it is used for spans greater than

(1) 12 m (2) 8 m (3) 16 m (4) 20 m

35. In shallow foundations, if the wall rests directly on foundation concrete without any step, it is called

(1) Spread footing (2) Swallow footing

(3) RCC pier (4) Simple footing

36. Which equation is used to estimate the velocity of flow through a channel in designing grass waterways ?

(1) Rancer's equation (2) Israelson equation

(3) Rational equation (4) Manning's equation

37. In the following formula, 'x' is used to compute which parameter ?

$$x = 1{\cdot}3 \times \frac{100S}{VI}$$

where, S = Slope of land in percent

VI = Vertical interval in metres

(1) Total earthwork per hectare

(2) Total length of bund per hectare

(3) Vertical interval between two consecutive contour bunds

(4) Horizontal interval between two consecutive graded bunds

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38. Which one of the following is ***not*** a type of bench terrace ?

(1) Level (2) Inwardly slopping

(3) Outwardly slopping (4) Along contour

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39. Kinetic Energy of a rainfall storm is determined by which equation where unit of K.E. is m-tonnes/ha-cm ?

where, I = rainfall intensity, cm/hr

(1) $K.E. = \frac{EI_{30} \times I_{30}}{100}$ (2) $K.E. = 210{\cdot}3 + 89 \log (I)$

(3) $K.E. = 210{\cdot}3 + 89\, ln\, (I)$ (4) $K.E. = \frac{1}{2} R\, I^2$

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40. Erosivity is defined as

(1) Capacity of wind to cause erosion

(2) Capacity of rain to cause erosion

(3) Vulnerability of soil susceptible for erosion

(4) None of the above

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41. Which of the following formulae is used to design peak rate of runoff for spillway of a permanent gully control structure ?

(1) $Q = 0{\cdot}0138\, H^{3/2}$ (2) $Q = 1{\cdot}80\, L\, H^{3/2}$

(3) $Q = 0{\cdot}61 \times 10^{-3}\, a\sqrt{2gh}$ (4) $Q = 1{\cdot}77\, L\, H^{3/2}$

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42. The slope length factor L, in the universal soil loss equation is determined by using the equation

(1) $L = \left(\frac{\lambda}{72{\cdot}6}\right)^m$ (2) $L = \frac{0{\cdot}43 + 0{\cdot}30s + 0{\cdot}43s^2}{6{\cdot}613}$

(3) $L = \frac{2keI_{30}}{100}$ (4) $L = 0{\cdot}0195(\tau c)^{0{\cdot}77}\, (s)^{-0{\cdot}385}$

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43. He was the first man who discovered that an electromotive force (emf) is generated in a conductor when the conductor is cut by magnetic lines of force (flux).

(1) Faraday (2) Newton (3) Einstein (4) Pascal

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44. Saltation, suspension and surface creep forms of movement of soil particles is associated with which type of soil erosion from the following ?

(1) Gully erosion (2) Rill erosion

(3) Wind erosion (4) None of the above

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45. What will be the vertical interval between two consecutive contour bunds if the land slope is 3% ?

(1) 0·90 m (2) 0·30 m (3) 3·00 m (4) 1·20 m

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46. Which one of the following is ***not*** a permanent gully control structure ?

(1) Drop spillway (2) Chute spillway

(3) Drop inlet spillway (4) Brushwood dam

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47. Soil erosion which results in the form of uniform removal of soil from land surface is termed as

(1) Splash erosion (2) Sheet erosion

(3) Rill erosion (4) Gully erosion

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48. In case of streams, stream bank erosion generally takes place on the _____ side of the stream.

(1) convex (2) concave (3) downstream (4) top

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49. The damaging effect of floods depends on their supercriticality which is measured by the Froude number (Fr).

The flow is said to be supercritical, if

(1) $Fr < 1$ (2) $Fr = 1$ (3) $Fr > 1$ (4) $Fr \leq 1$

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50. Threshold rainfall is defined as

(1) Cumulative rainfall before initiation of runoff

(2) Cumulative rainfall of storm

(3) Total daily rainfall

(4) None of the above

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51. Which one of the following is ***not*** an artificial Rainwater Harvesting technique ?

(1) Rock fracturing (2) Bore blast technique

(3) Afforestation (4) Construction of jacket around the well

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52. Apron type Rainwater Harvesting consists of treating the catchment area for maximum runoff. Which formula is used to compute the designed area to be aproned for the given water requirement ?

Where A = Area (m^2), b = 1·13 constant, U = Annual requirement (ltrs) and P = Average annual precipitation (mm).

(1) $A = b\left(\frac{P}{U}\right)$ (2) $A = b \times P \times U$

(3) $A = b\left(\frac{U}{P}\right)$ (4) $A = \frac{P \times U}{b}$

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53. A rectangular farm pond has the following dimensions :

a. Length = 10 m

b. Width = 5 m

c. Depth = 1 m

If it is totally filled in, what will the volume be in litres ?

(1) 50 (2) 500

(3) 5,000 (4) 50,000

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54. A farm pond has the following specifications :

a. Bottom surface = 5 × 5 m

b. Depth = 5 m

c. Side slopes = 1 H : 1 V
(on all the sides)

What will the size of the top of the farm pond be ?

(1) 10 m × 10 m

(2) 20 m × 20 m

(3) 15 m × 15 m

(4) 20 m × 10 m

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55. Which of the following equations is used for water balance studies of a watershed (using conventional notations) ?

(1) $P = R + E + \Delta S = \Delta Sg$

(2) $P = R + ET + U + \Delta S + \Delta Sg$

(3) $P = R + ET + U + \Delta S$

(4) None of the above

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56. Which one of the following options ***cannot*** be included in the concept of watershed development ?

(1) Construction of major dams
(2) Optimal management of land water resources
(3) Socio-economic and institutional development
(4) Biodiversity protection

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57. Delineation of a watershed is an exercise of

(1) Area wise delineation
(2) Land use wise delineation
(3) Topographically drainage stream wise delineation
(4) None of the above

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58. Which of the following formulae is used to design the diameter of the inlet pipe in a Drop Inlet Type spillway, which is a permanent gully control structure, where the outlet is not submerged ?

(1) $Q = a \cdot cd \sqrt{2gh}$ (2) $Q = a \times V$

(3) $Q = \frac{CIA}{360}$ (4) None of the above

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59. Out of different biological measures used to control erosion in a watershed, which one of the following is ***not*** a biological measure ?

(1) Contour strip cropping (2) Mixed cropping
(3) Buffer strip cropping (4) Field strip cropping

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60. Which of the following types of farm ponds should be selected where ground water table rise is within a few metres from the ground surface ?

(1) Embankment type
(2) Dugout type
(3) Polythene lined dugout type
(4) Cement concrete lined embankment type

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61. Which one of the following options is ***not*** a geomorphological characteristic of a watershed ?

(1) Total area of watershed (2) Circulatory ratio
(3) Form factor (4) Compaction factor

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62. If,

A = Area of pond at G.L. (m^2)

B = Area of pond at middle (m^2)

C = Area of pond at bottom (m^2)

V = Volume of pond (m^3)

D = Average depth of pond (m),

which of the following relations is used to find the volume of the farm pond in m^3 ?

(1) $V = \left(\frac{A + 4B + C}{6}\right) \times D$

(2) $V = \left(\frac{A + 2B + C}{6}\right) \times D$

(3) $V = \left(\frac{A + B + C}{3}\right) \times D$

(4) None of the above

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63. Triangular V-notch (90° triangular weir) is a simple flow measuring instrument used for evaluation of watershed development programme.

Which is the discharge formula for this instrument ?

(1) $Q = 0{\cdot}0138\ H^{3/2}$

(2) $Q = 0{\cdot}0184\ H^{3/2}$

(3) $Q = 0{\cdot}0138\ LH^{3/2}$

(4) $Q = 0{\cdot}0138\ H^{5/2}$

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64. For land use planning, land capability classification maps are prepared.

Which type of land capability class the area demarked with green colour represent ?

(1) Class I (2) Class II

(3) Class VI (4) Class VIII

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65. The surface of a channel which is in contact with water is called

(1) Hydraulic radius

(2) Wetted perimeter

(3) Wetted area

(4) None of the above

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66. The drainage density of any catchment/watershed varies inversely with the

(1) area of the basin

(2) length of the basin

(3) width of the basin

(4) average depth of the basin

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67. The type of flow in which the fluid characteristics like velocity, pressure, density, etc. at a point do not change with time, is called

(1) Steady flow (2) Unsteady flow

(3) Uniform flow (4) Non-uniform flow

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68. Velocity head is the pressure, expressed in metres of water, required to create the velocity of flow, is expressed as

(1) $H_v = \sqrt{2gd}$ (2) $H_v = \frac{v^2}{2g}$

(3) $H_v = \left(\frac{v^2}{2g}\right)^2$ (4) $H_v = \frac{p}{w}$

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69. $q = k_d H^x$

where

q = emitter flow rate in *l*ph

H = working pressure head at emitter, m

k = discharge coefficient

x = emitter discharge exponent

In this equation, the lower value of 'x' denotes

(1) the discharge will be less affected by variations in pressure

(2) the discharge will be more affected by variations in pressure

(3) there will not be any influence of variations in pressure on discharge

(4) None of the above

---

70. Infiltration rate of any soil is generally expressed by the following form of equation :

(1) $y = mx + c$ (2) $y = at_{\Delta} + b$

(3) $y = at^{\alpha} + b$ (4) $y^2 = 4ax + c$

71. The typical characteristic curves of a centrifugal pump show the relationship amongst

a. Discharge b. Total head

c. Brake horse power d. Efficiency

Answer options :

(1) a, b and c (2) a, b and d

(3) b, c and d (4) a, b, c and d

72. A canal aligned at right angles to the contours is a

(1) Watershed canal (2) Contour canal

(3) Side slope canal (4) Distributory canal

73. The criteria for judging the performance of outlets or modules are

a. Flexibility b. Proportionality

c. Sensitivity d. Uniformity

e. Setting

Answer options :

(1) a, b, c and d only (2) a, b, c and e only

(3) a, b, d and e only (4) b, c, d and e only

74. The bedding system of surface drainage is mostly used for

a. Flat soils

b. Steep slopy soils

c. Poorly drained soils with low permeability

d. Sandy soils with high permeability

Answer options :

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

75. Cover material is applied to pipe drains

a. to facilitate water flow into the drain.

b. to prevent the entry of soil particles into the drain.

Answer options :

(1) a only (2) b only (3) Both a and b (4) None of the above

---

76. A 36 hectare catchment area having a drainage coefficient of 2·40 cm, will yield a discharge of

(1) 100 lit/sec (2) 10 lit/sec (3) 10 m^3/hr (4) 0·01 m^3/sec

---

77. Which one of the following formulae is used to design drain spacing under unsteady state condition ?

(1) Dupit-Forchheimer (2) Ernst

(3) Hooghoudt (4) Glover-Dumm

---

78. Which of the following operations requires moving large quantities of earth over considerable distances ?

a. Rough grading b. Land levelling

c. Land smoothening d. Land planning

Answer options :

(1) a only (2) b only (3) a and b only (4) All of the above

---

79. Which of the following statements is true ?

(1) Specific yield + Specific retention = Porosity

(2) Specific retention – Specific yield = Porosity

(3) Porosity + Specific yield = Specific retention

(4) Porosity + Specific retention = Specific yield

---

80. The recommended safe limits of land slope (longitudinal slope, %) for efficient irrigation for heavy clay soils is

(1) 0·05 to 0·20 (2) 0·25 to 0·65

(3) 0·65 to 1·00 (4) 0·20 to 0·40

कच्च्या कामासाठी जागा / **SPACE FOR ROUGH WORK**

81. High speed engines have engine speed _____ rpm.
(1) less than 350 (2) 350 – 750
(3) 750 – 1000 (4) greater than 1000

82. An engine is considered to be better, when it produces the highest crankshaft torque at
(1) Rated engine speed
(2) Maximum power
(3) Less than rated engine speed
(4) More than rated engine speed

83. The compression ratio of diesel engines are in the order of
(1) 4 to 8 : 1 (2) 8 to 14 : 1
(3) 14 to 20 : 1 (4) 1 to 4 : 1

84. The fuel which should be used for easy starting of an engine in cold weather is
(1) Diesel (2) Kerosene
(3) Methanol (4) Petrol

85. The power developed by an average pair of bullocks is about
(1) 7500 watts (2) 750 watts
(3) 75000 watts (4) 75 watts

86. A cold spark plug has
(1) A short insulator (2) A long insulator
(3) Small threads (4) Big threads

87. The drawbar power output is always less than the Power Take-Off (PTO) output because of _____ in the drive train between the engine and the wheels.
(1) drive wheel slippage
(2) tractor rolling resistance
(3) friction losses
(4) All of the above

88. The component parts of a single drop steering system consists of the following parts :

a. Radius rod, drag link and steering wheel
b. Drop arm, drag link and tie rod
c. Radius rod, tie rod and drop arm
d. Drag link, radius rod and drop arm

Which of the above statements is/are true ?

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

---

89. A gear reduction unit between differential and drive wheels of a tractor is referred to as

(1) Final drive (2) Gear unit
(3) Ultimate power system (4) None of the above

---

90. When the tractor is taking a turn, the inner and outer wheels should

(1) Rotate at the same speed
(2) Rotate at slower and faster speeds respectively
(3) Rotate at faster and slower speeds respectively
(4) Rotate at any speed

---

91. Which type/s of dynamometer/s has/have to absorb energy to measure PTO power of the tractor ?

a. Prony brake b. Hydraulic
c. Electrical generator d. Eddy current

Answer options :

(1) a only (2) a and b only
(3) a, b and d only (4) All of the above

---

92. _____ are the useful devices used for levelling which are fabricated by village artisans.

a. Buck scraper b. Float c. Planks d. Bund former

Answer options :

(1) a and b only (2) a, b and d (3) a only (4) All of the above

---

93. An implement that is fully supported by the tractor is

(1) Trailed implement (2) Mounted implement
(3) Semi-mounted implement (4) All of the above

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94. To change the width of cut with a disc plough, the _____ should be changed; usually _____ is considered to be the optimum value.

(1) disk angle, 40° to 45° (2) tilt angle, 15° to 25°

(3) horizontal suction, 6 to 12 (4) vertical suction, 6 to 12

---

95. The point at which the resultant of all horizontal and vertical forces act on implement is known as

(1) Centre of pull (2) Centre of power

(3) Centre of resistance (4) Centre of hitch

---

96. Depreciation is the reduction in the value of a machine caused by

(1) Wear

(2) Weathering and accidental damage

(3) Obsolescence or any other similar reasons

(4) All of the above

---

97. _____ is a precision drilling machine.

(1) Seed drill (2) Planter

(3) Transplanter (4) Tiphan

---

98. In a sickle, the forged end of the blade for fixing the handle is called

(1) Ferrule (2) Tang (3) Frame (4) Beam

---

99. The seed drill should be calibrated for _____ before actually operating in the field.

(1) placement of seeds at correct row-to-row spacing

(2) placement of seeds at correct seed-to-seed spacing

(3) correct seed rate

(4) correct seed depth

---

100. _____ loss is the grain lost out the rear of combine in the form of unthreshed heads.

(1) Cutter bar (2) Threshing

(3) Separating (4) Cleaning

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 स्वत:बरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. **मात्र परीक्षा कक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.**

नमुना प्रश्न

Pick out the correct word to fill in the blank :

Q. No. 201. I congratulate you _____ your grand success.

(1) for (2) at

(3) on (4) about

ह्या प्रश्नाचे योग्य उत्तर "(3) on" असे आहे. त्यामुळे या प्रश्नाचे उत्तर "(3)" होईल. **यास्तव** खालीलप्रमाणे प्रश्न क्र. **201** समोरील उत्तर-क्रमांक "③" हे वर्तुळ 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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SEAL