Msc in Soil & Water Cons

15P/305/5 Question Booklet No. 219

(To be filled up by the candidate by blue/black ball-point pen)

702

Roll No. | | | | | | | | | |

Roll No.
(Write the digits in words) .....

Serial No. of OMR Answer Sheet .....

Day and Date ....
(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

(Use only **blue/black ball-point pen** in the space above and on both sides of the Answer Sheet)

1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope.*
3. A separate Answer Sheet is given. *It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*
4. Write your *Roll Number and Serial Number of the Answer Sheet by pen* in the space provided above.
5. **On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.**
6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and also Roll No. and OMR Sheet No. on the Question Booklet.
7. Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. *For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle* in the corresponding row of the Answer Sheet, by ball-point pen as mentioned in the guidelines given on the first page of the Answer Sheet.
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed.* If you *do not wish to attempt* a question, leave all the circles in the corresponding row blank (such question will be awarded zero mark).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit *only the OMR Answer Sheet* at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

[उपर्युक्त निर्देश हिन्दी में अन्तिम आवरण-पृष्ठ पर दिये गए हैं]

[No. of Printed Pages : 20+2

No. of Questions/प्रश्नों की संख्या : 120

Time/समय : 2 Hours/घण्टे **Full Marks/पूर्णांक :** 360

Note : (1) Attempt as many questions as you can. Each question carries **3** marks. **One** mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.

अधिकाधिक प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक प्रश्न **3** अंक का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जाएगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा।

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

यदि एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

1. Which of the following is an active factor of soil formation?

(1) Parent material (2) Climate

(3) Time (4) Relief

2. The process of accumulation of materials in B horizons is called

(1) eluviation (2) carbonation (3) illuviation (4) oxidation

3. The crystal units of montmorillonite are held together by

(1) O-H linkage (2) O-O linkage

(3) H-bonding (4) covalent bonding

4. Which of the following elements has highest concentration in earth's crust?

(1) Silicon (2) Iron (3) Magnesium (4) Calcium

5. Old name of *Rhizobium* is

(1) *Bacillus radicicola* (2) *Bacillus polymixa*

(3) *Bacillus megatherium* (4) *Bacillus thuringiensis*

6. Which of the following micro-organisms forms nodules on roots?

(1) *Azolla* (2) *Azotobacter* (3) *Frankie* (4) *Clostridium*

7. Marble contains high quantity of

(1) $MgCO_3$ (2) $CaCO_3$ (3) Na_2CO_3 (4) K_2CO_3

8. Keen box is used in determination of

(1) soil water holding capacity (2) soil moisture content

(3) soil temperature (4) soil structure

9. Sticking of two different nature of particles is called

(1) Flocculation (2) Cohesion

(3) Deflocculating (4) Adhesion

10. Nitrification is a process of

(1) biological reduction (2) biological oxidation

(3) biological carbonation (4) biological N_2-fixation

11. Which of the following soil orders is not found in India?

(1) Mollisol (2) Vertisol (3) Gellisol (4) Inceptisol

12. The maximum water holding capacity occurs at pF value of

(1) 1·0 (2) 3·0 (3) 6·0 (4) 7·0

13. The size of silt particles in ISSS system is

(1) 2 mm to 0·2 mm (2) 0·2 to 0·02 mm

(3) 0·02 to 0·002 mm (4) < 0·002 mm

14. The Indian Institute of Soil Science is located at

(1) Jodhpur (2) Nagpur (3) Bhopal (4) New Delhi

15. Which of the following is a metamorphic rock?

(1) Sandstone (2) Dolomite (3) Granite (4) Gneiss

16. Hydrolysis of which of the following elements causes highest acidity to soil?

(1) Fe (2) Mn (3) Al (4) Cu

17. The major cation causing deflocculating of soil is

(1) Na^+ (2) K^+ (3) Ca^{++} (4) Mg^{++}

18. Most of the gaseous exchange between atmosphere and soil occurs by

(1) mass flow (2) dialysis (3) osmosis (4) diffusion

19. Hydrometer is used for determination of

(1) soil moisture (2) leaf moisture

(3) soil texture (4) soil temperature

20. Main source of K in soil is

(1) Montmorillonite (2) Mica

(3) Quartz (4) Kaolinite

21. Process of podzolization takes place in

(1) warm humid climate (2) cold humid climate

(3) arid climate (4) semi-arid climate

22. Which of the following soil conservation measures is most popular in India?

(1) Bench terracing (2) Contour bunding

(3) Contour strip (4) Mulching

23. Parent material deposited by the action of gravity is called

(1) Alluvium (2) Colluvium (3) Moraine (4) Marine

24. Soil Taxonomy is based on the

(1) soil forming factors (2) soil forming processes

(3) measurable soil properties (4) climate

25. Lowest category is soil taxonomy is

(1) order (2) family (3) series (4) great group

26. Vertisols are mainly found in which State?

(1) UP (2) Punjab (3) MP (4) Haryana

27. Physical condition of soil in relation fo plant growth is called

(1) Tillage (2) Tilth (3) Mulch (4) Terracing

28. Crop planted for protection when regular crops are off the land are called

(1) strip crop (2) cover break (3) wind crop (4) shelter belts

29. Induced pan is formed at

(1) plough depth

(2) surface

(3) greater depth

(4) Both surface and plough depth

30. 'Chisel' is an implement used for

(1) sowing seed
(2) breaking hard pan
(3) ploughing
(4) planting

31. Plant available water in soil is

(1) 0 to - 20 bar
(2) $-\frac{1}{3}$ to - 15 bar
(3) - 1 to - 15 bar
(4) $-\frac{1}{2}$ to - 20 bar

32. Graded bunds are suited in

(1) low rainfall areas
(2) high rainfall areas
(3) medium rainfall areas
(4) very low rainfall areas

33. Azolla is a

(1) Fern (2) Algae (3) Bacteria (4) Fungi

34. Lime is used as an amendment to reclaim

(1) sodic soils
(2) acid soil
(3) calcareous soils
(4) saline soils

35. Biofertilizers are

(1) organic manure
(2) culture of micro-organisms
(3) green manures
(4) mineral fertilizers

36. Ammonia is transformed to nitrate in the soil by

(1) fungi (2) algae (3) bacteria (4) earthworms

37. Which of the following is a micronutrient for plants?

(1) Aluminium (2) Sulphur (3) Silica (4) Molybdenum

38. Volume of soil under the influence of roots of growing plant is known as

(1) surface soil (2) sub-surface soil

(3) rhizosphere (4) solum

39. The C : N ratio of a normal mineral cultivated soil is

(1) 6 to 8 (2) 10 to 12 (3) 14 to 16 (4) 18 to 20

40. Size of the clay particle is

(1) less than 1·0 micron (2) between 1 and 2 mm

(3) less than 2 microns (4) less than 0·002 mm

41. The ESP of a sodic soil is

(1) more than 15 (2) more than 10

(3) more than 5 (4) less than 15

42. Gypsum is used as amendment for the reclamation of

(1) saline soil (2) sodic soil

(3) calcareous soil (4) acid sulfate soil

43. Acid soils are generally found in

(1) arid region
(2) humid region
(3) semi-arid region
(4) hot region

44. The Rhizobium is

(1) known to fix nitrogen in cereals
(2) a fungus that symbiotically fixes nitrogen in legumes
(3) a bacteria found in roots of sugarcane
(4) known to fix nitrogen in roots of legumes

45. Biofertilizers contain

(1) biologically active organic substances
(2) biochemically produced mineral fertilizers
(3) living useful micro-organisms augmenting the supply of nutrients to plants
(4) fertilizers produced from dead biomass

46. Which of the following is not essential for plants?

(1) Calcium (2) Molybdenum (3) Iodine (4) Chlorine

47. Which of the following minerals is dominant in oxisols?

(1) Kaolinite
(2) Montmorillonite
(3) Illite
(4) Chlorite

48. The Khaira disease of rice is caused by

(1) excess of organic matter (2) toxicity of zinc

(3) deficiency of sulphur (4) deficiency of zinc

49. Soil submergence increases the availability of

(1) calcium (2) iron (3) nitrogen (4) nitrates

50. Soils containing high organic matter normally have

(1) light colour (2) red colour

(3) dark-brown colour (4) yellow colour

51. The Central Soil Salinity Research Institute is located in

(1) Delhi (2) Ludhiana (3) Hissar (4) Karnal

52. Who among the following is known as 'Father of Soil Science'?

(1) H. Jenny (2) K. D. Glinka

(3) V. V. Dokuchaiu (4) J. S. Joffe

53. Sandstone and limestone are examples of

(1) sedimentary rocks (2) igneous rocks

(3) metamorphic rocks (4) mixed rocks

54. Major plant usable water in soils is

(1) capillary water (2) gravitational water

(3) hygroscopic water (4) lattice water

55. A soil having available P of 30 kg/ha will be rated as

(1) high (2) medium (3) low (4) very low

56. A soil with available K of 100 kg/ha is considered as

(1) high in potassium supply

(2) moderate in potassium supply

(3) very poor in potassium supply

(4) low in potassium supply

57. Neutron Probe is used for the determination of

(1) soil nitrogen (2) soil colour

(3) soil moisture (4) soil strength

58. Content of organic matter in a typical mineral soil on volume basis

(1) 2% (2) 10% (3) 15% (4) 5%

59. Percentage of World's freshwater in India is

(1) 10% (2) 15% (3) 4% (4) 20%

60. Which of the following is not a pressurized irrigation system?

(1) Drip irrigation (2) Furrow irrigation

(3) Sprinkler irrigation (4) Rainguns

61. Supply of the nutrients to crops through pressurized irrigation is known as

(1) irrigation (2) fluvigation (3) navigation (4) fertigation

62. Erosion in which soil loss is remain undetected for a long period is called as

(1) Splash erosion (2) Sheet erosion

(3) Rill erosion (4) Gully erosion

63. Diameter of the soil particle move during suspension process

(1) 0·1 to 0·5 mm (2) less than 0·1 mm

(3) 0·5 to 1·0 mm (4) more than 1·0 mm

64. CSWCRTI is situated at

(1) Hyderabad (2) Dehradun (3) Karnal (4) New Delhi

65. Percentage of nitrogen in urea is

(1) 21% (2) 18% (3) 46% (4) 60%

66. How many nutrients are essential for plant growth?

(1) 20 (2) 18 (3) 17 (4) 16

67. Which of the following is a macro-nutrients?

(1) Iron (2) Zinc (3) Phosphorus (4) Copper

68. Law of minimum was propounded by

(1) Lebeig (2) Braya (3) Mitscherlich (4) Sprillman

69. 'Whip tail' disease of cauliflower is caused by the deficiency of

(1) Zinc (2) Manganese

(3) Boron (4) Molybdenum

70. Deficiency symptoms of nitrogen on plants first appears on

(1) younger leaves (2) older leaves

(3) upper second leaves (4) Both younger and older leaves

71. Content of phosphorus in DAP is

(1) 25% (2) 60% (3) 18% (4) 46%

72. Which of the following elements help to prevent lodging of plants?

(1) Nitrogen (2) Phosphorus (3) Sulphur (4) Potassium

73. Which of the following is most popular zinc fertilizer?

(1) Zinc sulphate (2) Zinc carbonate

(3) Zinc chloride (4) Zinc EDTA

74. Which of the following instruments is used for the determination of micronutrients?

(1) Atomic absorption spectrophotometer

(2) Flame photometer

(3) pH meter

(4) EC meter

75. Factor for converting organic carbon into organic matter is

(1) 1·724 (2) 1·921 (3) 2·724 (4) 2·921

76. Composting process aided by earthworm is known as

(1) Biocomposting (2) Nadep composting

(3) Composting (4) Vermicomposting

77. Nitrification is a process in which

(1) N_2 is transformed to NH_3 (2) NH_4^+ is transformed to NO_2^-

(3) N_2 is transformed to NO_3^- (4) NH_4^+ is transformed to NO_3^-

78. Long-term effect of urea application in soil is

(1) alkaline (2) neutral

(3) acidic (4) increase in organic matter

79. Which of the following essential elements is chiefly taken by plant roots through diffusion in soil?

(1) Nitrogen (2) Sulphur (3) Phosphorus (4) Copper

80. The process by which nitrate nitrogen is reduced into gaseous N_2 and N_2O called as

(1) nitrification (2) nitrogen fixation

(3) denitrification (4) volatilization

81. Geohydrogeological unit of the land which drains through a common point is called

(1) watershed (2) astuary (3) waterbody (4) pond

82. Zinc deficiency commonly occurs in

(1) alluvial soils (2) acidic soils

(3) calcareous soils (4) organic soils

83. Which one is the most commonly used boron fertilizer?

(1) Borax (2) Bauxite

(3) Borosilicates (4) Solubor

84. Illite is the dominant clay mineral is

(1) alluvial soils (2) black soils

(3) hill soils (4) coastal soils

85. High analysis fertilizers are those

(1) which require high cost of analysis

(2) which require high-level analysis procedure

(3) which contain high percentage of nutrient element

(4) whose analysis gives higher percentage of nutrient than actual content

86. Which of the following gases is dominant in biogas?

(1) Nitrogen (2) Methane

(3) Hydrogen (4) Carbon dioxide

87. pH meter works on the principle of

(1) Amperometry (2) Turbidmetry

(3) Densitometry (4) Potentiometry

88. Under what condition denitrification is a major mechanism of nitrogen loss from soil?

(1) Well drained soil (2) Fallow land

(3) Submerged soil (4) Pasture land

89. Soils of these textured class have maximum water holding capacity

(1) sandy soil (2) clay soil

(3) loam soil (4) clay loam soil

90. Dispersing agent used in particle size analysis of soils is

(1) sodium
(2) sodium hexametaphosphate
(3) sodium thiosulphate
(4) sodium phosphate

91. Fick's law govern the mechanism of

(1) mass flow
(2) capillary movement
(3) diffusion
(4) laminar flow

92. Soil crusting is a form of soil

(1) compaction (2) texture (3) structure (4) consistency

93. Gypsum block is used to measure

(1) soil pH
(2) soil moisture
(3) organic matter
(4) available potassium

94. The most abundant element by volume in the earth crust is

(1) silicon (2) iron (3) oxygen (4) aluminum

95. Which of the following is an acid igneous rock?

(1) Basalt (2) Graphite (3) Granite (4) Gypsum

96. The highest category of soil taxonomy is

(1) order (2) series (3) great group (4) polypedon

97. Which of the following is not a category of soil taxonomy?

(1) Soil order (2) Soil Series

(3) Soil great group (4) Soil type

98. Marble is formed from metamorphism of which rock?

(1) Limestone (2) Sandstone (3) Granite (4) Basalt

99. Which of the following characters of the soil is not good for iron and steel structures fencing?

(1) High pH (2) Light colour

(3) Fine texture (4) Course texture

100. In land capability classification, land suitable for cultivation are from class

(1) I to III (2) I to V (3) I to IV (4) I to II

101. Which of the following fruits is richest source of vitamin C ?

(1) Barbados cherry (2) Guava

(3) Lime (4) Mango

102. Mango belongs to family

(1) Bromeliaceae (2) Anacardiaceae

(3) Martaceae (4) Caricaceae

103. The edible portion of litchi is

(1) Aril (2) Endosperm (3) Mesocarp (4) Thalamus

104. Which fruit category of the following does apple belong?

(1) Berry (2) Pepo (3) Pome (4) Hesperidium

105. Wintering is an important operation in

(1) Marigold (2) Rose (3) Gladiolus (4) Tulip

106. Trust worthiness and competence are the element of

(1) empathy (2) credibility (3) fidelity (4) interaction

107. Cone of experience was given by

(1) Leagans (2) Edgar Dale (3) Berlo (4) Rogers

108. The SMCR Model of Communication was proposed by

(1) Leagans (2) Shannon and Weaver

(3) D. K. Berlo (4) Wilbur Schramm

109. ABC of a poster refers to

(1) Attraction, Brief, Colour (2) Attraction, Brief, Clear

(3) Attraction, Brightness, Clear (4) Attractive, Bright, Colour

110. Community Development Programme was launched in the year

(1) 1950 (2) 1951 (3) 1952 (4) 1953

111. IVLP stands for

(1) Intensive Village Level Programme

(2) Integrated Village Linkage Programme

(3) Institute Village Linkage Programme

(4) Internal Void and Lacuna in a Person

112. The establishment of KVK was the result of recommendation of

(1) B. R. Mehta Committee

(2) Kothari Committee

(3) M. S. Swaminathan Committee

(4) M. S. Mehta Committee

113. In meiosis, chromosomes move towards opposite poles in

(1) Metaphase I (2) Prophase I

(3) Anaphase I (4) Telophase I

114. Lab to Land Programme is associated with ICAR's

(1) Golden Jubilee (2) Silver Jubilee

(3) Diamond Jubilee (4) Platinum Jubilee

115. The first Chairman of Planning Commission was

(1) Dr. Rajendra Prasad (2) Dr. S. Radhakrishnan

(3) Pt. Jawaharlal Nehru (4) Dr. B. R. Ambedkar

116. An individual lacking a pari of chromosome ($2n-2$) is known as

(1) Tetrasomic (2) Trisomic (3) Nullisomic (4) Pentasomic

117. MAL 13 is a popular variety of

(1) Pigeon-pea (2) Mungbean (3) Mustard (4) Urdbean

118. The somatic chromosome ($2n$) number of bread wheat is

(1) 40 (2) 44 (3) 42 (4) 46

119. Tricales are the examples of

(1) interspecific hybridization (2) intergeneric hybridization

(3) varietal hybridization (4) Southern hybridization

120. A pure line is a progeny of single, self fertilized

(1) homozygous individual (2) heterozygous individual

(3) both (1) and (2) (4) None of these

***

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण-पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली या काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।

2. परीक्षा भवन में *लिफाफा रहित प्रवेश-पत्र के अतिरिक्त,* लिखा या सादा कोई भी खुला कागज साथ में न लायें।

3. उत्तर-पत्र अलग से दिया गया है। ***इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा, केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।***

4. अपना *अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन* से निर्धारित स्थान पर लिखें।

5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।

6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्न-पुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्न-पुस्तिका पर अनुक्रमांक सं० और ओ० एम० आर० पत्र सं० की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।

7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।

8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। ***प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिये आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।***

9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।

10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का *उत्तर नहीं देना चाहते हैं,* तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।

11. रफ़ कार्य के लिये प्रश्न-पुस्तिका के मुखपृष्ठ के अन्दर वाले पृष्ठ तथा अंतिम पृष्ठ का प्रयोग करें।

12. परीक्षा के उपरान्त केवल *ओ०एम०आर० उत्तर-पत्र* परीक्षा भवन में जमा कर दें।

13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।

14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की, भागी होगा/होगी।